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The development and pilot testing of a school-based prevention programme for eating disorders

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**The development and pilot testing of a school-based prevention
programme for eating disorders**

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Thesis submitted to King's College London, University of
London, for the degree of Doctor of Philosophy (PhD)

2013

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Abstract

Eating disorders are important candidates for preventative efforts because of their prevalence, consequences and associated costs. Universal interventions could be a valuable part of the overall prevention strategy if they can be widely disseminated with minimal costs. The studies in this thesis developed and evaluated an evidence-based universal prevention programme for eating disorders, which could be delivered by secondary school teachers. To achieve this, four phases of work were carried out. First, a systematic review and meta-analysis revealed evidence in support of 'fat talking' being a causal risk factor for body dissatisfaction. This could therefore be a valuable target for prevention programmes. Second, a focus group study explored adolescents' understandings of the causes of body dissatisfaction and eating pathology and their recommendations for the prevention of these problems. Students focused on sociocultural factors and suggested the need for supportive school environments, media literacy and staff training. Third, a consultation period with school staff and review of risk factors for eating disorders was used to guide the development of the intervention's form and content. Based on this, a six session intervention was developed that targeted body dissatisfaction, thin-ideal internalisation, appearance conversations, negative affect and self-esteem. Finally, this intervention was evaluated by means of clustered randomised controlled trial with 446 adolescent girls from three secondary schools. Significant improvements were observed in those receiving the intervention for body esteem, thin-ideal internalisation and self-esteem. In contrast, no changes were seen for peer support, depressive symptoms or eating pathology. Acceptability, fidelity and efficacy varied across the three school sites. In conclusion, these results suggest that universal teacher-delivered prevention has promise, although a continued focus on developing interventions that are efficacious across a range of school settings will be an essential next step.

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Papers and conference presentations associated with this thesis

Sharpe, H., Damazer, K., Treasure, J., & Schmidt, U. (in press) *What are adolescents' experiences of body dissatisfaction and dieting, and what do they recommend for prevention? A qualitative study*. Eating and Weight Disorders.

Sharpe, H., Treasure, J. & Schmidt, U. (Sept. 2012) *Me, You & Us: A Promising Novel Intervention For Preventing Body Dissatisfaction and Eating Pathology in UK Schools*. Poster presented at the Eating Disorders Research Society 18th Annual Meeting, Porto, Portugal.

Sharpe, H., Treasure, J. & Schmidt, U. (May 2012) *Me, You & Us: The Development & Pilot Testing of a Three Tiered Approach to Preventing Eating Disorders in UK Secondary Schools*. Paper presented at the Academy for Eating Disorders International Conference on Eating Disorders, Austin, TX, USA.

Sharpe, H., Treasure, J. & Schmidt, U. (May 2012) *Growing up with body confidence: A qualitative study of young people's views on body dissatisfaction and dieting*. Poster presented at the Academy for Eating Disorders International Conference on Eating Disorders, Austin, TX, USA.

Declaration of the candidate's role in each of the studies

Throughout all work, guidance was provided by the candidate's primary and secondary supervisors, Prof. Ulrike Schmidt and Prof. Janet Treasure.

Chapter 1: The prevention of eating disorders

All work is the candidate's own.

Chapter 2: Is fat talking a causal risk factor for body dissatisfaction? A systematic review and meta-analysis

The candidate devised the concept for the review, developed the review protocol, conducted the searches and undertook the data extraction. Ms. Ulrike Naumann, statistician at the Department for Biostatistics and Computing, Institute of Psychiatry, King's College London, conducted the meta-regression and meta-analyses. The candidate provided interpretation of the results.

Chapter 3: What are adolescents' experiences of body dissatisfaction and dieting, and what do they recommend for prevention? A qualitative study

The candidate designed the focus group study, including the topic guide, managed ethical approval and recruited the school. The candidate conducted the focus groups with Mr. Peter Musiat, (then) PhD candidate, Section of Eating Disorders, Institute of Psychiatry, King's College London. Audio recordings of focus groups were transcribed by Ms. Katharine Damazer, Honorary Research Assistant, Section of Eating Disorders, Institute of Psychiatry, King's College London. The candidate conducted all analyses.

Chapter 4: Designing a universal prevention programme for eating disorders in secondary schools

The candidate led the development process, conducted consultations with all stakeholders, and designed draft and final versions of intervention material. As outlined in the chapter in detail, input on intervention form and content was provided by a range of stakeholders, including school staff and young people, as well as experts in eating disorders. All final decisions regarding intervention development were made by the candidate.

Chapter 5: A cluster randomised controlled trial assessing the efficacy of Me, You & Us in reducing risk factors for eating disorders in secondary school students

The candidate designed the randomised controlled trial, obtained ethical approval, recruited the participants, managed consent procedures, and conducted the statistical analyses. Administering of questionnaires was completed by participating school staff based on written instruction from the candidate. Ilka Schober, Honorary Research Worker, Section of Eating Disorders, Institute of Psychiatry, King's College London, assisted with data entry. Approximately 50% data entry was completed by the candidate and 50% completed by Ms. Schober. Ms. Hannah Sallis, and Dr. Mizanur Khondoker, expert statisticians at the Department for Biostatistics and Computing, Institute of Psychiatry, King's College London, provided consultation regarding the statistical analyses. The candidate conducted all analyses and provided all interpretation.

Chapter 6: General discussion

All work is the candidate's own.

Acknowledgements

First and foremost, I would like to thank Ulrike Schmidt for her kindness and warmth of spirit, and for making it possible for me to carry out this work. I could not have wished for a better supervisor. I would like to extend my thanks to Janet Treasure, for her continued support and valuable insights on this project, and to Iain Campbell for never letting me get bored. My gratitude goes out to the rest of the team at the Section of Eating Disorders for creating such a fun and supportive environment in which to work. I can only hope that every office is as lovely as ours.

I owe special thanks to my office mates and great friends Peter Musiat and Abby Easter, for keeping me going and making even the tricky times seem rather fun. I feel so lucky to have met you both. I would like to also send a huge thank you to Ilka Schober for working so hard with me and being a wonderful friend. It goes without saying that I am indebted to Mum, Dad, Phil, Vicky, Lizzie and Justin – thank you for all your support and for keeping everything in perspective. I'm looking forward to being able to spend some more time together now. And, of course, above all, to Janiv. Your turn next! I hope I can look after you as well as you've looked after me.

Finally, I would like to send my appreciation to the many school staff, students and parents who gave their time and energy to be involved in this research. I hope it was enjoyable, and look forward to being able to share the results with you.

Acknowledgement of funding

This thesis presents independent research commissioned by the National Institute for Health Research (NIHR) under its Programme Grants for Applied Research scheme (RP-PG-0606-1043). The views expressed in this publication are those of the author and not necessarily those of the NHS, the NIHR or the Department of Health.

This work was supported by a grant from the NIHR Biomedical Research Centre for Mental Health, South London and Maudsley NHS Foundation Trust and Institute of Psychiatry, King's College London.

Chapter 1: The Prevention Of Eating Disorders

Eating disorders as candidates for preventative efforts

Preventative medicine aims “to reduce the risk of disease and the risk of further morbidity and mortality in those who develop disease” (Mant, 2003, p. 58). This stands in contrast to curative medicine: whereas curative medicine tackles current disease burden, preventative medicine tackles future disease burden. Given the limited resources available for healthcare interventions, it is worth noting that not all conditions are necessarily suitable candidates for preventative medicine. In this chapter, I argue that prevention is most valuable when three criteria are met: (1) the condition is sufficiently common; (2) outcomes associated with the condition are particularly severe; and (3) the condition tends to be enduring. Essentially this means that a condition, once present, is costly (understood in the broadest sense of the term): it brings about profound negative consequences, and these negative consequences tend to persist over time.

In the section that follows, I argue that eating disorders meet all three of these criteria and, as such, should be considered suitable candidates for preventative efforts.

The nature and prevalence of eating disorders

The first question concerns whether eating disorders are sufficiently common to warrant prevention. Before coming to this, let us briefly outline the nature of these conditions. In the most recent revisions of the Diagnostic and Statistical Manual of Mental Disorders (“DSM-5”, American Psychiatric Association, 2012), due to be released in 2013, there are seven diagnoses of eating disorders. Four are of interest in this thesis¹: anorexia nervosa, bulimia nervosa, binge eating disorder, and feeding and eating conditions not elsewhere specified (FECNEC), formerly called eating disorders not otherwise specified (EDNOS)², which includes sub-threshold conditions as well as purging disorder and night eating syndrome.

¹ The remaining three diagnostic categories are Pica, Rumination Disorder and Avoidant/Restrictive Food Intake Disorder (American Psychiatric Association, 2012). These conditions are generally unrelated to problems of body image: they involve eating non-food substances, regurgitating food, and an apparent lack of interest or aversion to food.

² As EDNOS is the official term until the publication of DSM-5, due in 2013, I will use EDNOS rather than FECNEC throughout this thesis.

Anorexia nervosa is characterised by a restriction of food intake such that the individual is severely underweight, combined with an intense fear of gaining weight and a disturbance in the evaluation of the body's weight and shape. Bulimia nervosa is characterised by frequent³ episodes of binge eating coupled with inappropriate compensatory behaviours (self-induced vomiting, excessive exercise, etc.), and an undue level of importance assigned to weight and shape. Binge eating disorder is characterised by recurrent episodes of binge eating that are not accompanied by any compensatory behaviours. In DSM-IV (APA, 2000), binge eating disorder was only a provisional diagnosis. However, there has been growing clinical and academic interest in this condition and its distinction from both bulimia nervosa and obesity (Wilson & Sysko, 2009), leading to its inclusion in the most recent revisions of the diagnostic manuals (APA, 2012).

It is worth remembering that in addition to these three formal diagnoses there is that of EDNOS. This residual category is intended for presentations of eating disorders that do not meet full criteria for any of the other eating disorder conditions. In adult outpatient settings, however, diagnoses of this residual category make up around 50% cases⁴ (Fairburn & Bohn, 2005). Importantly, we know that the presentation and outcomes for EDNOS are on the whole as severe as those with major diagnoses (Field et al., 2012; Schmidt et al., 2008; Turner & Bryant-Waugh, 2004).

Turning now to the prevalence of these conditions: are they sufficiently common for us to justify prevention? Taken from a community sample of adolescents in the USA, lifetime prevalence estimates for DSM-IV diagnoses of anorexia nervosa, bulimia nervosa and binge eating disorder are 0.3%, 1.3% and 2.3% for girls, and 0.3%, 0.5% and 0.8% for boys (Swanson, Crow, Le Grange, Swendsen, & Merikangas, 2011). In adult samples, these lifetime prevalence estimates are slightly elevated, but in a similar range: 0.9%, 1.5% and 3.5% for anorexia nervosa, bulimia nervosa and binge eating

³ This frequency criterion was twice per week in the DSM-IV-TR (APA, 2000) and is likely to be reduced to once per week in DSM-5. Prevalence estimates of BN are therefore likely to increase with DSM-5 as previous EDNOS cases would reach criteria for BN.

⁴ This figure exclude cases of binge eating disorder, which in DSM-IV were part of the not otherwise specified section. In DSM-IV criteria, the figure is nearer 60 percent.

disorder in women, and 0.3%, 0.5% and 2.0% for these conditions in men (Hudson, Hiripi, Pope, & Kessler, 2007).

The question of whether these prevalence rates are sufficiently high to warrant prevention requires taking a number of factors into account. First, these prevalence estimates do not take into account the partial or mixed cases of eating disorders – the ‘not otherwise specified’ cases. Further analyses with this same community sample has shown that cases of EDNOS made up 80 percent of cases of eating disorders in adolescents, with lifetime prevalence rates of 4.6 percent (Le Grange, Swanson, Crow, & Merikangas, 2012).

A second point to make here is that even prevalence estimates drawn from large national surveys like this one are actually likely to under-estimate the true number of cases (Hoek & Van Hoeken, 2003). Given the valued nature of eating disorder pathology to many people living with these conditions (Serpell, Treasure, Teasdale, & Sullivan, 1999; Vitousek, Watson, & Wilson, 1998), it is feasible that they may not disclose disordered eating to researchers.

Finally, it is worth remembering that worrying and unhealthy disordered eating behaviour is not confined to those with clinically classifiable conditions. Studies assessing weight-related behaviours in adolescents have shown that around a half of adolescent girls and a fifth of adolescent boys report dieting (Neumark-Sztainer & Hannan, 2000). Similarly, approximately 60 percent of girls and 30 percent of boys report having used unhealthy weight control behaviours, such as fasting, skipping meals or smoking cigarettes, in the past year (Neumark-Sztainer, Paxton, Hannan, Haines, & Story, 2006). Importantly, these factors are normative but not benign: they are associated with a range of negative outcomes, including low mood, low self-esteem, low levels of physical activity, and weight gain, as well as more severe eating pathology (Neumark-Sztainer, Paxton, et al., 2006; Neumark-Sztainer, Wall, et al., 2006; Paxton, Neumark-Sztainer, Hannan, & Eisenberg, 2006).

Overall, it is clear that even with potentially conservative estimates the prevalence of eating disorders is substantial. And, furthermore, if we expand our field of interest to include subclinical disordered eating, which we know is detrimental to physical and

psychological health (Field et al., 2012; Schmidt et al., 2008; Turner & Bryant-Waugh, 2004), we can see that these problems are pervasive for young people, and therefore seem to be worthy of attention.

The costs associated with eating disorders

‘Costs’ of a condition can be understood in the broadest sense, including psychological distress, mortality, morbidity, financial costs of healthcare and sick leave from school or work, both of the individual and of friends, relatives and carers affected by the individual with the condition. In terms of the negative outcomes associated with eating disorders, we know that they are severe, both at the personal and the societal level. This is true across the spectrum of diagnoses.

Premature death is perhaps the greatest cost of any condition. Mortality is elevated for those with anorexia nervosa: a recent meta-analysis reported standardised mortality rates of 5.86 (Arcelus, Mitchell, Wales, & Nielsen, 2011), and eating disorders have been shown to have amongst the highest mortality rates of any psychiatric condition (Harris & Barraclough, 1998). Evidence is less clear, however, whether an increased mortality arises from bulimia nervosa and binge eating disorder (Arcelus et al., 2011; Keel et al., 2003).

Eating disorders are also associated with significant levels of physical and psychological comorbidities and sequelae. The long term medical complications of anorexia nervosa can be profound, affecting all organ systems, including, bones, the cardiovascular system and the reproductive system (Klump, Bulik, Kaye, Treasure, & Tyson, 2009; Mitchell & Crow, 2006). Bulimia nervosa is also associated with significant medical complications, particularly dental problems, gastro-intestinal difficulties and pathologies related to electrolyte abnormalities, which may be brought about by self-induced vomiting and laxative abuse (Mehler, 2011). Binge eating disorder is typically associated with obesity (Striegel-Moore et al., 2001) and all of the associated morbidity with being severely overweight.

In terms of the financial costs of eating disorders, few formal assessments have been conducted (Simon, Schmidt, & Pilling, 2005). The most comprehensive review in the UK, conducted by John Henderson from Pro-Bono Economics for B-eat, the leading

UK eating disorder charity, estimates that the total costs of eating disorders in England are £1.26 billion per year (Henderson for Pro Bono Economics, 2012). These figures are derived from estimates in England of the direct healthcare costs of eating disorders being £80 – 100 million per year, indirect costs from reduced GDP later in life estimated being at least £230 million per year, and intangible costs from loss of quality and length of life being at least £950 million per year.

Although these financial costs are clearly large, the question of whether they are large *enough* to warrant prevention is a complex one. When compared to other brain disorders as part of a large European study, eating disorders were estimated to produce the lowest overall costs of the disorders considered (€827 million per year, compared to €74,380 million for anxiety disorders) (Gustavsson et al., 2011). However, there are reasons to believe that this study underestimated the true costs of eating disorders. First, the estimates were based only on diagnoses of anorexia nervosa and bulimia nervosa.⁵ Second, given the paucity of research in this field, for eating disorders the cost estimates were all drawn from a single study based in Germany, and so the costs in other healthcare settings are not known. Third, the estimates did not take into account the costs associated with premature mortality, which we know are elevated in anorexia nervosa. And, finally, the estimates did not include “intangible costs”, such as loss of quality of life.

There is growing evidence that these intangible costs are great in eating disorders. As discussed above, in the estimates for the UK produced by Henderson, costs associated with quality and length of life were the greatest source of burden from eating disorders. Reviews of quality of life in eating disorders show considerable impairment, both compared to the general population and to individuals with other psychiatric conditions, such as schizophrenia (Hay & Mond, 2005; Jenkins, Hoste, Meyer, & Blissett, 2011). In addition, carer burden is something that cannot be overlooked; there is strong evidence that families face much of the burden of care, and that this is often associated

⁵ The diagnoses were based on ICD 10 Classification of Mental and Behavioural Disorders (World Health Organisation, 1992) codes for anorexia nervosa, atypical anorexia nervosa, bulimia nervosa and atypical bulimia nervosa, but excluded all other eating disorders and eating disorders unspecified.

with significant psychological distress, feelings of loss, guilt and shame (Treasure et al., 2001; Zabala, Macdonald, & Treasure, 2009).

Overall, it is difficult to currently estimate costs for eating disorders, but it is clear that the costs associated with living with these conditions are not trivial. Medical care is one element, but more substantial are the ‘human costs’ of the loss of quality of life for those affected.

The course of eating disorders

Studies looking specifically at the course of eating disorders suggest that the prognosis for those with eating disorders remains mixed. Steinhausen and colleagues reviewed studies of the course of both anorexia nervosa and bulimia nervosa and reported that approximately 45 percent achieved recovery, a third improved and about 20 percent remained chronically unwell (Steinhausen, 2002; Steinhausen & Weber, 2009).

One factor affecting course of illness is the availability and effectiveness of treatments. Treatments for eating disorders have been the focus of much high quality research. Cognitive behavioural therapy (CBT) has been shown to be effective for treatment of adult and adolescent bulimia nervosa and binge eating disorder (National Institute for Health and Clinical Excellence, 2004; Schmidt et al., 2007). At this point, however, there remains no ‘gold standard’ of treatment for anorexia nervosa in adults that is supported by randomised controlled trials (National Institute for Health and Clinical Excellence, 2004).

A second important factor in the course of eating disorders is that, due to the ego-syntonic nature of these conditions, a proportion of individuals with eating disorders, particularly anorexia nervosa, will choose to avoid treatment or will find it difficult to adhere to treatments (Hudson et al., 2007). This means that a significant minority of individuals who develop eating disorders will not seek help, and so the condition is more likely to endure over time.

Summary

Overall, we can see that eating disorders are associated with profound costs and, for a combination of reasons, around half of patients diagnosed with anorexia nervosa or bulimia nervosa continue to struggle with at least some symptoms over many years. These facts, coupled with the notable prevalence suggest that prevention is a particularly valuable aim in this area.

The current state of eating disorder prevention

Prevention terminology

Before reviewing existing prevention programmes for eating disorders it is worth being clear on the terminology that has been used in this field. Prevention approaches have been delineated in different ways, and revisions continue to be proposed (Weisz, Sandler, Durlak, & Anton, 2005). Early distinctions were drawn between primary, secondary and tertiary prevention (Caplan, 1964). *Primary prevention* aims to decrease the incidence of a condition in a population. *Secondary prevention* aims to reduce the prevalence in the population through early detection and treatment. *Tertiary prevention* aims to reduce morbidity associated with that condition, such as limiting the number of sick days from work. More recently, the prevention taxonomy has been based on risk status, rather than programme aims. The distinction is between universal, selective and indicated programmes (Mrazek & Haggerty, 1994). *Universal prevention* programmes deliver the material to all individuals in the population regardless of risk status. So, for example, an intervention will be administered to an entire school or to everyone in a particular primary care trust. *Selective prevention* delivers an intervention specifically to those individuals that are identified as being at increased risk for the condition. For example, preventative lifestyle interventions may be given to individuals at risk of type II diabetes due to an elevated BMI, or family history of the condition. Finally, *indicated prevention* is aimed at those individuals who are already showing early signs or symptoms of the condition.

Approaches to eating disorder prevention

Since the onset of research into the prevention of eating disorders in the late 1980s (Killen et al., 1993; Moreno & Thelen, 1993; Moriarty, Shore, & Maxim, 1990), there have been over sixty controlled trials of prevention programmes (Stice, Shaw, & Marti,

2007). Interventions have taken many forms, ranging from psycho-education videos (Withers, Twigg, Wertheim, & Paxton, 2002), puppet shows (Irving, 2000) and exercise interventions (Zabinski, Calfas, Gehrman, Wilfley, & Sallis, 2001) to online cognitive behavioural therapy (Winzelberg et al., 2000), media literacy (Wilksch & Wade, 2009) and cognitive dissonance groups (Stice, Shaw, Burton, & Wade, 2006). Various systematic reviews and meta-analyses have shown that results from these trials have been mixed (Beintner, Jacobi, & Taylor, 2012; Stice & Shaw, 2004; Stice, Shaw, et al., 2007).

There are a number of factors to take into account when hoping to untangle what works in eating disorder prevention. In reviewing this literature it is tempting to aim to answer the overarching question of *what works?* However, it is worth considering that a more useful approach may be to ask *what works for whom?* This question acknowledges that different tactics might be suitable in different groups of individuals, such as those of different ages, genders, cultures and risk for conditions. It also acknowledges that it is unlikely that a panacea for eating disorder prevention is going to emerge, and rather a mosaic of complementary interventions may be the most probable solution.⁶

With this in mind, in what follows I conduct a focused narrative review on the major approaches to eating disorder prevention – delineating the field based on intervention content and theoretical approach⁷ – with an explicit focus on the *for whom* question, through exploring the types of individuals for whom the intervention has been shown to be effective or ineffective. I focus on higher quality studies, especially those using randomised controlled trial methodology and those interventions tested in multiple trials. In doing this, I hope to show which parts of the mosaic are well established, and which may require further work to fall into place.

⁶ This argument, presented in terms of the need for a portfolio of modes of delivery in psychotherapy, is given in Kazdin and Blase (2011).

⁷ Many interventions contain elements of different approaches, such as a combination of media literacy and self-esteem content. I try to organise interventions based on their dominant content as well as how authors tend to describe the programme. It should be borne in mind, however, that interventions may span different categories.

Psycho-education approaches

One approach to the prevention of eating disorders has been to provide participants with information about eating disorders and unhealthy weight management focusing on the harms associated with these behaviours. The reasoning behind this approach was that young people would be encouraged not to engage in disordered eating behaviours as they would know that these behaviours are dangerous for their psychological and physical health. Psycho-education material has been presented in a number of different forms: videos that can be shown in school classrooms (Schwartz, Thomas, Bohan, & Vartanian, 2007), face-to-face discussions with someone who has recovered from an eating disorder (Mann et al., 1997), school lessons delivered by eating disorder researchers (Killen et al., 1993), and eating disorder classes in the usual curriculum in university (Stice & Ragan, 2002).

Generally speaking psycho-educational approaches to eating disorder prevention have not had great successes in any groups (Stice, Shaw, et al., 2007). For example, Killen et al. (1993) assessed a classroom psycho-education intervention with young adolescent girls and only found significant improvements in measures of knowledge about eating disorders, with no changes shown for attitudes or behaviours related to disordered eating. Worryingly, Mann et al. (1997) reported small increases in eating disorder behaviours in adults who attended psycho-education delivered by someone who had recovered from an eating disorder, compared to controls. These results were interpreted as the psycho-educational content and discussion inadvertently normalising disordered eating behaviours.

In interpreting this body of literature, it is worth bearing in mind that these studies are particularly plagued by poor design, such as a lack of control groups (Kater, Rohwer, & Levine, 2000; Moriarty et al., 1990; Schwartz et al., 2007), meaning that drawing firm conclusions can be difficult. Despite the methodological shortcomings of these studies, it is now well accepted that psycho-education around the dangers of eating disorders is unlikely, in any form and for any groups of participants, to be a strong solution to the prevention of eating disorders.

CBT approaches

An alternative approach to eating disorder prevention has been to use principles from cognitive behavioural therapy (CBT) to reduce body dissatisfaction. A number of interventions report using a CBT approach (Dalle Grave, De Luca, & Campello, 2001; Heinicke, Paxton, McLean, & Wertheim, 2007; Stewart, Carter, Drinkwater, Hainsworth, & Fairburn, 2001), with the most prominent programme in this field being *Student Bodies*. *Student Bodies* is delivered via CD-ROM or internet and consists of an eight-week course first developed and tested in Stanford University, USA (Winzelberg et al., 1998), and more recently translated and tested in Germany (Jacobi et al., 2007).

A meta-analysis of ten randomised controlled trials of *Student Bodies* reported moderate effect sizes for eating disorder-related attitudes, such as the desire to be thin and negative body image, which were maintained to an average follow up of six months (Beintner et al., 2012). These results put *Student Bodies* amongst the most promising interventions in terms of effect sizes (Stice, Shaw, et al., 2007). *Student Bodies* has been most frequently assessed with young adult populations, who are students at university (e.g. Jacobi et al., 2007; Taylor et al., 2006). Several studies with adolescent samples have also been conducted (Fritsche & Schlenkirch, unpublished dissertation cited in Beintner et al., 2012; Bruning Brown, Winzelberg, Abascal, & Taylor, 2004). All trials involve female participants only.

Both universal (Winzelberg et al., 2000) and selective (Taylor et al., 2006) trial designs have been used. A moderator analysis in the meta-analysis revealed no differences between universal and selective samples (Beintner et al., 2012). However, these results perhaps mask the fact that the studies considered to be universal used self-selecting samples (Celio et al., 2000), most of which had to explicitly express a desire to tackle negative body image (Winzelberg et al., 2000). This suggests that the universal samples in these studies were in fact at greater risk of eating pathology than the general population. The view that *Student Bodies* is better suited as a selective intervention is emphasised by the results of Bruning Brown et al. (2004), in which *Student Bodies* was delivered to a ‘true’ universal sample of intact classes of high school students with very

modest results (a significant reduction in only one outcome, restraint, which was lost at follow up).

These results suggest that CBT interventions focusing on reducing body dissatisfaction and improving eating behaviours, such as *Student Bodies*, are a promising approach for motivated young adult women that are at increased risk for eating disorders due to their elevated weight and shape concerns. Aside from content, they also demonstrate that, for this population, technology-mediated interventions are feasible and acceptable.

Media literacy & sociocultural approaches

Growing evidence regarding sociocultural risk factors for eating disorders and body dissatisfaction (e.g. Clark & Tiggemann, 2006; Levine & Murnen, 2009; McCabe & Ricciardelli, 2003b), particularly the depiction of thinness across mass media, has led to the development of media literacy interventions. The theoretical drive for these schemes is that, as active consumers of mass media, “media literate” individuals can analyse and evaluate media messages and are therefore equipped with the skills needed to think flexibly and critically about the thin-ideal presented in these media (Levine, Piran, & Stoddard, 1999). Sociocultural interventions extend pure media literacy to include sociocultural pressures from a range of sources, including peers and family members.

A large number and wide range of media literacy/sociocultural interventions have been conducted, with children (Smolak, Levine, & Schermer, 1998), adolescents (Wade, Davidson, & O'Dea, 2003), and adults (Ridolfi, Myers, Crowther, & Ciesla, 2011), as well as participants at different levels of risk (Elliot et al., 2004; Wilksch & Wade, 2009). Interventions have taken a range of forms, including video presentations (Posavac, Posavac, & Weigel, 2001), classroom interventions (Richardson & Paxton, 2010), and community interventions in scout groups (Neumark-Sztainer, Sherwood, Collier, & Hannan, 2000).

Media literacy/sociocultural interventions for children, in primary (elementary) school have most often taken the form of classroom-based programmes delivered by usual teachers. Typically these interventions focus on sociocultural influences, such as teasing and media influences, as well as healthy eating and self-esteem (e.g. Eating Smart, Eating for Me, Smolak et al., 1998). Overall media literacy/sociocultural interventions

for children have not demonstrated consistent success, although most studies face substantial methodological shortcomings, including lack of randomisation (Smolak et al., 1998; Stock et al., 2007). An intervention based in scout groups produced significant improvements in internalisation and short-term effects relating to attitudes towards different body shapes and knowledge about puberty (Neumark-Sztainer et al., 2000). In contrast, a peer-led whole-school intervention *Healthy Buddies*, involving media literacy and healthy eating elements showed no effects in the eating attitudes of participants (Stock et al., 2007). *Eating Smart, Eating for Me* has been shown to produce changes in knowledge about the media but few attitudinal changes (Smolak & Levine, 2001). However, when compared to controls recruited from different schools, intervention participants tended to have higher body esteem and use fewer unhealthy weight loss behaviours at two years follow up, suggesting that some contamination between interventions groups and control groups from the same school could underlie null results (Smolak & Levine, 2001).

Similarly poor and inconsistent results of media literacy/sociocultural interventions have been found in adult samples, usually consisting of young women at university. A number of studies have assessed the effectiveness of media literacy videos, such as *Slim Hopes* (Irving & Berel, 2001; Rabak-Wagener, Eickhoff-Shemek, & Kelly-Vance, 1998) and *Killing Us Softly* (Watson & Vaughn, 2006), in universal interventions and found few substantial effects. However, combining media literacy videos with multiple face-to-face sessions seems to potentially be a promising approach, producing significant improvements in body esteem and internalisation over three months (Watson & Vaughn, 2006). Media literacy (also including videos) with sorority members also provides mixed findings. Initial studies showed media literacy significantly improving dietary restraint, body dissatisfaction and eating pathology (Becker, Smith, & Ciao, 2005), but follow up investigations showed this intervention to have few effects that were sustained over eight months (Becker, Bull, Smith, & Ciao, 2008).

In contrast to these findings, media literacy/sociocultural interventions during adolescence have shown more promise. A number of programmes have produced improvements in body dissatisfaction and eating pathology with both universal (Favaro, Zanetti, Huon, & Santonastaso, 2005) and selective designs (Elliot et al., 2004). For

example, *GO GIRLS!* (EDAP, 1999) is a five session intervention delivered by facilitators to mixed gender groups of adolescents. Both the pilot trial (Piran, Levine, & Irving, 2000) and a later randomised controlled trial were encouraging, with participants showing significant reduction in weight concerns at three months post-intervention (Wade et al., 2003). Similarly, *Happy Being Me*, which combines media literacy with lessons on peer relations and social comparisons, significantly improved a range of eating disorder-related factors, including body dissatisfaction, internalisation and dietary restraint, with effects being maintained at three month follow up (Richardson & Paxton, 2010). Also delivered in Australia, an eight-lesson programme, *Media Smart*, has demonstrated significant improvements in body dissatisfaction and dieting in boys at 6 months follow up, and in weight and shape concerns in girls through to 30 months follow up (Wilksch & Wade, 2009).

Overall, trials of media literacy/sociocultural interventions have shown limited success in child or adult populations, but have a growing evidence base for adolescents. At this age, interventions have been tested in both universal and selected groups, and in girls only, as well as mixed gender settings, with some programmes showing long term effects on body dissatisfaction and dieting.

Self-esteem & life skills approaches

In contrast to the approaches discussed so far, self-esteem and life skills approaches aim to tackle body dissatisfaction and eating pathology without directly focusing on eating/body-related topics. These approaches had particular appeal following some negative outcomes from psycho-education interventions (e.g. Carter, Stewart, Dunn, & Fairburn, 1997), which suggested that eating disorder prevention researchers should be wary of potential iatrogenic effects. There have been two main programmes that have been tested across multiple trials: *Every Body is a Somebody*, and *Everybody's Different*.

Using a pure self-esteem approach, *Everybody's Different* is a nine session programme that is designed to be delivered by regular school teachers (O'Dea & Abraham, 2000) to adolescents (aged 11 – 15 years). The lessons focus on the nature of self-esteem, valuing uniqueness, and techniques for feeling positive, such as building supportive relationships (O'Dea & Abraham, 2000). In the initial trial of this intervention with 470 adolescents, there were promising results with significant improvements in body dissatisfaction,

physical appearance ratings and the importance of physical attractiveness for self-concept at post-intervention (O'Dea & Abraham, 2000). Some of the effects were maintained at 12 months follow up, particularly in the case of participants (male and female) that were at high-risk for eating disorders initially.

In contrast to these results, two follow up trials have failed to find any significant effects of *Everybody's Different* (Ghaderi, Mårtensson, & Schwan, 2005; Wade et al., 2003). However, the implications of these results are difficult because both trials may have lacked power due to lower samples sizes ($n = 86 - 164$), and in one trial the intervention content was substantially shortened to accommodate schools' needs (Wade et al., 2003). In addition, the trial reported by Ghaderi et al. (2005) was conducted in Sweden, raising the question of cultural factors affecting efficacy. Interestingly, in Wade et al. (2003) *Everybody's Different* was directly compared to a media literacy intervention, and the media literacy intervention demonstrated superior results, with long term improvements in body esteem. This suggests that media literacy may provide a more suitable approach for universal intervention during adolescence.

Turning to the second intervention, *Every Body is a Somebody* is a six lesson life skills prevention curriculum, that has been delivered by facilitators and usual teachers in Canada (McVey & Davis, 2002). The programme has been tested in three randomised controlled trials with young adolescents, either on its own (McVey & Davis, 2002; McVey, Davis, Tweed, & Shaw, 2004) or as part of a wider school intervention (McVey, Tweed, & Blackmore, 2007). Although the initial trial showed no intervention effects (McVey & Davis, 2002), a further study showed promising results, with significant improvements in body dissatisfaction, self-esteem and dieting, with some effects lasting into the 12 month follow up (McVey et al., 2004). Similar positive outcomes were reported for the inclusion of *Every Body is a Somebody* within a whole-school intervention, with particular improvements in body dissatisfaction and eating pathology reported through to six month follow up for those who were at high-risk for eating disorders (McVey et al., 2007). This trial included boys as well as girls suggesting that the intervention is not restricted to female-only samples.

Finally, McVey and colleagues have investigated the potential for using the 'power of peers' during adolescence through delivering life skills approaches to the prevention of

eating disorders via peer support groups. The peer groups, *Girl Talk*, were facilitated by public health nurses that had been trained in *Every Body is a Somebody* (McVey, Lieberman, Voorberg, Wardrope, & Blackmore, 2003). Although initial trials with over 200 adolescent girls showed positive results – with significant improvements in body esteem and a reduction in dieting over three months (McVey, Lieberman, Voorberg, Wardrope, & Blackmore, 2003) – a replication study failed to show any effects (McVey, Lieberman, Voorberg, Wardrope, Blackmore, et al., 2003). In interpreting these results, McVey et al. note that, although they were drawn from a standard school setting, participants in the replication trial showed elevated eating pathology at baseline, suggesting that *Girl Talk* may be most suited to primary prevention rather than targeting pathology that is already in place.

When comparing the disparate results between *Everybody's Different* that *Every Body is a Somebody* it is worth noting that *Every Body is a Somebody* does incorporate elements of media literacy and some educational content around healthy eating under the banner of general life skills (McVey & Davis, 2002). This indicates that although pure self-esteem (that is, with no reference to body image or eating), showed relatively poor results for mixed adolescent samples, incorporating life skills material into interventions that also include some body esteem-relevant content is a promising approach for young adolescents. These trials also demonstrate the feasibility of true universal intervention, which also includes boys, and having interventions delivered by regular school staff rather than relying on external facilitators.

Theatre and drama approaches

Several interventions for children, in primary (elementary) school have considered the use of theatre interventions, either with children developing drama pieces, or with professional performances. There have been two notable interventions – *Very Important Kids (V.I.K.)* (Haines, Neumark-Sztainer, Perry, Hannan, & Levine, 2006) and *Eating Disorder Awareness and Prevention Puppet Program (EDAP)* (Irving, 2000) – although neither has been assessed in multiple trials and both have shown mixed results.

V.I.K. is a whole school intervention with multiple components, including after-school exercise, staff training, an anti-teasing campaign, sessions with family members and a theatre production (Haines, Neumark-Sztainer, Perry, et al., 2006). In the theatre

component students worked with a theatre company over ten weeks to develop their own theatre piece around teasing in school and ways in which teasing can be stopped. In comparison to a control school, participants receiving *V.I.K.* did report experiencing less teasing in the school as well as positive changes in peer factors, such as perceived peer dieting. However, no changes were seen in body dissatisfaction, dieting or thin-ideal internalisation (Haines, Neumark-Sztainer, Perry, et al., 2006).

EDAP is a puppet program designed for children in fifth grade (approximately 9 years old) with the aim of reducing negative size-related stereotypes and promoting healthy attitudes towards food (Irving, 2000). When assessed in an uncontrolled trial, children who had attended the puppet show displayed fewer weight-related stereotypes, giving some preliminary indication that theatre shows may be a useful strategy with young children. However, we cannot know whether these changes translate into meaningful changes in risk for eating disorders.

These studies suggest that theatre may be a promising medium for prevention in younger children. However, more studies with greater methodological rigour would be needed to make claims regarding whether theatre-based interventions ‘work’ for children. A focus on the theoretical underpinning of the content, as well as the process, may also help to improve the efficacy of this approach.

Family-based approaches

Several preventative interventions for eating disorders have aimed to work with family members. The rationale for these approaches comes from evidence that family-based treatments have shown promise in the treatment of eating disorders during adolescence (Lock, 2010). In addition, sociocultural approaches emphasise the importance of changing cultural norms across the social environment, including peers, teachers and family members.

Two preventative interventions have included a family component as part of a wider universal programme but faced difficulties of feasibility with few parents choosing to participate. As part of *Very Important Kids*, Haines, Neumark-Sztainer, Perry, et al. (2006) invited parents to participate in ‘family nights’ about body image, in conjunction with a whole-school teasing intervention. However, attendance was low with only 15

percent of parents choosing to attend. In a different approach, Varnado-Sullivan et al. (2001) combined universal with selective intervention through inviting parents of students deemed at high-risk for eating disorders to participate in a parent-centred phase of the *Body Logic* programme. Feasibility of this approach was also drawn into question as only two parents of the fifty-four approached (4%) attended the body image sessions.

A more recent study has explored the use of early intervention specifically for anorexia nervosa, which is directly targeted at parents, and not part of a wider school programme. The programme, called *Parents Act Now* (P@N) or, in German, *Eltern als Therapeuten* (E@T), is delivered via the internet and based on elements of family-based therapy for anorexia nervosa and *Student Bodies* (discussed above)(Jones, Völker, Lock, Taylor, & Jacobi, 2012). Preliminary results from a small, uncontrolled trial suggest reduction in risk status for adolescents, and positive feedback from participating parents (Jones et al., 2012). This suggests that online, therapeutically informed interventions for the families of those at high-risk for anorexia nervosa would be worth pursuing further. As with the trials already discussed, however, recruitment was challenging with small numbers of eligible adolescents and families choosing to enrol in the programme.

Diet & exercise approaches

A completely different approach to the prevention of eating disorders and body dissatisfaction has been the use of an intervention focusing on diet and exercise lifestyle management. As discussed in detail in Chapter 4, the link between dieting and body dissatisfaction/eating pathology is complex. Whereas self-reported dieting is a risk factor for eating pathology, experimental investigations have demonstrated that being allocated to a calorie-controlled diet can reduce bulimic pathology (Groesz & Stice, 2007; Presnell & Stice, 2003). This approach also has the added benefit that eating disorder prevention programmes may be combined with those targeting obesity, another major public health concern, and one which is often viewed as being at odds with the aims of eating disorder prevention.

The diet and exercise intervention that has received most research attention is the *Healthy Weight* intervention, initially designed by Stice, Chase, Stormer, and Appel (2001) as a control intervention. Unexpectedly, however, this programme produced

positive outcomes (Stice, Chase, et al., 2001). *Healthy Weight* consists of three 60 minutes sessions delivered in small groups by a facilitator. The sessions cover nutritional information, meal and exercise planning (Stice, Chase, et al., 2001). Multiple randomised controlled trials have demonstrated that the *Healthy Weight* intervention significantly reduces body dissatisfaction, dieting, negative affect, thin-ideal internalisation and bulimic pathology in high-risk women, who report problems with body dissatisfaction (Matusek, Wendt, & Wiseman, 2004; Stice, Chase, et al., 2001). The results have also been replicated in samples of high-risk adolescent girls, with effects being maintained for two-three years (Stice, Marti, Spoor, Presnell, & Shaw, 2008; Stice et al., 2006; Stice, Trost, & Chase, 2003). More recently this intervention has been run by peer facilitators within sororities (Becker et al., 2010), and groups of adult female athletes (Becker, McDaniel, Bull, Powell, & McIntyre, 2012), both with similar successes.

Cognitive dissonance approaches

A final approach is based on cognitive dissonance theory (Festinger, 1957), which states that we are driven to resolve discrepancies between conflicting cognitions (attitudes, beliefs, emotions). This theory has been utilised by Stice and colleagues (Stice, Chase, et al., 2001; Stice, Mazotti, Weibel, & Agras, 2000) in developing the *Body Project* – an intervention in which individuals' investment in the thin-ideal is challenged through dissonance-inducing activities. The intervention consists of three 60 minute sessions, and is typically delivered by a facilitator. Recently, a prototype online version has also been piloted with promising results (Stice, Rohde, Durant, & Shaw, 2012).

The *Body Project* has been extensively evaluated. The majority of studies have assessed its efficacy with high-risk samples of young women, who are either screened for body dissatisfaction/internalisation (Roehrig, Thompson, Brannick, & Van den Berg, 2006) or self-select as experiencing body image concerns (Stice, Chase, et al., 2001). Multiple randomized controlled trials have demonstrated that cognitive dissonance interventions successfully improve body dissatisfaction, internalisation of the thin-ideal and eating pathology in these high-risk young women, with effects maintained at up to three years (Matusek et al., 2004; Mitchell, Mazzeo, Rausch, & Cooke, 2007; Stice, Chase, et al., 2001; Stice, Mazotti, et al., 2000; Stice et al., 2006).

Various studies have also attempted to dismantle the effects and understand the active components of this intervention. Mediator investigations demonstrated that changes in outcomes were mediated by changes in internalisation, which fits the hypothesis that the dissonance activities are driving a change in internalisation (Stice, Marti, Rohde, & Shaw, 2011; Stice, Presnell, Gau, & Shaw, 2007). Similar results have also been found with high-risk groups of adolescent girls (Stice, Marti, et al., 2008; Stice, Trost, et al., 2003) and female athletes (Becker et al., 2012). Trials manipulating the intensity of dissonance inducement have generally found few differences between high- and low-dissonance versions of the intervention (McMillan, Stice, & Rohde, 2011; Roehrig et al., 2006), suggesting either that low-dissonance is sufficient or that other non-specific factors are of importance.

The *Body Project* has formed the basis of a cognitive dissonance intervention being tested in sorority settings, known as *Reflections* (Becker et al., 2005). Sorority groups could be considered to be high-risk populations (Basow, Foran, & Bookwala, 2007), although Becker's work in this group has not involved specifically targeting those sorority members at risk. *Reflections* has been shown to be effective in reducing body dissatisfaction, negative affect, bulimic symptomatology and thin-ideal internalisation up to 14 months. The intervention has been equally successful when delivered by facilitators (Becker et al., 2005) as by trained peer leaders (Becker, Smith, & Ciao, 2006; Becker et al., 2010).

In a different body of work, cognitive dissonance approaches have also loosely informed a series of nine lesson universal interventions in Germany, called *PriMa* and *Torera*. These interventions are based on similar material and have targeted risk factors for anorexia nervosa in young adolescent girls (Wick et al., 2011), and risk factors for bulimia nervosa and binge eating disorders in groups of mixed gender adolescents (Berger et al., 2013). Both programmes have been delivered by trained teachers. A large non-randomised controlled trial showed that *PriMa* improved knowledge about eating disorders and body esteem, although effects were not maintained for body esteem at a three month follow up (Wick et al., 2011). There was no effect of the intervention on eating behaviours (Wick et al., 2011). A large non-randomised trial of *Torera* revealed significant effects of the intervention for body esteem and risky eating behaviours for girls but not boys (Berger et al., 2013). Worryingly, however, when asked about

adherence to the intervention manual, eight out of ten teachers said that they deviated from the programme manual (e.g. by condensing lessons due to time constraints). This poor fidelity may undermine the internal validity of this trial, making interpretation of these results difficult.

It is also worth pointing out that whilst authors of both interventions make explicit reference to a cognitive dissonance approach (Berger et al., 2013, p. 5; Wick et al., 2011, p. 154), the form of this dissonance induction differs substantially from that of Stice and colleagues. Whereas the *Body Project* requires participants to induce cognitive dissonance regarding the thin ideal through making statements in opposition to the ideal (Stice & Presnell, 2007), the dissonance in *PriMa* and *Torera* comes from discussions of posters in which characters are portrayed as having conflicting outward appearances and emotions (e.g. a seemingly happy and popular ‘Barbie’, who is inwardly suffering with obsessions with weight and shape) (Berger et al., 2013; Wick et al., 2011). It should also be pointed out that *Torera* draws on a number of other behaviour change theories (the Health Action Process Approach, the Theory of Planned Behaviour, the Health Belief Model, and the Stages of Change Model, Berger et al., 2013). As such, the extent to which these programmes can be deemed cognitive dissonance approaches, in the sense typically used in this field, is questionable.

In summary, cognitive dissonance approaches developed by Stice, Becker and colleagues have demonstrated a potent efficacy for reducing risk factors for eating disorders in high risk groups of young women, and adult sorority members. The findings from these programmes have been consistently shown across multiple high quality randomised controlled trials. Other programmes ostensibly using cognitive dissonance approaches have also shown some successes in universal settings with adolescent girls. However, methodological limitations, as well as basing the interventions on a mixture of theoretical approaches, makes it difficult at this point to conclude whether cognitive dissonance *per se* is a suitable approach for school settings.

Summary: What do we know and what don’t we know about what works for whom?

In reviewing this literature, it becomes clear that, although historically eating disorder prevention has been a research area plagued by poor methodology and little follow

through, there are now a substantial number of interventions that have been evaluated via multiple randomised controlled trials. There does, however, remain much that we do not know.

Generally speaking, we do not know what works for prevention with children (those under 11 years). Diet- and nutrition-based programmes may have promise but there has not been much research in this area. Although theatre-based interventions show some positive results, again research is too limited to conclude whether there are meaningful effects of these approaches. There have been no selective interventions in children so this may be one option to pursue. Although, it is likely that determining who is at risk at this young age may prove to be difficult.

We have a clearer understanding of what works for adolescents and adults, although the level of support for different interventions does vary. We have good reason to believe that media literacy and self-esteem approaches seem to work for universal groups of adolescents, including boys. There is also good evidence that for those girls who are at risk and already experience body dissatisfaction, cognitive dissonance, diet and exercise, and CBT-based interventions all offer promising solutions. Further exploration of the feasibility of family-based approaches would also be worthwhile.

Similarly, for adults, we know that for high-risk and motivated adult women cognitive dissonance interventions, diet and exercise interventions and CBT-based interventions are very effective at reducing risk factors for eating disorders. Further work would be beneficial in determining what works for men, especially given growing evidence that problems with body dissatisfaction and eating disorders are more prominent in men than perhaps previously thought (Swanson et al., 2011). There is also little evidence currently regarding what techniques are effective for universal interventions in adults.

The case for universal teacher-delivered prevention in secondary schools

From this summary, we can see that one area that is promising, and which would benefit from further research, is universal prevention during adolescence. In what follows, I make the case for schools-based universal interventions that are delivered by teachers in secondary schools.

Secondary schools as promising settings for intervention

The greatest incidence of eating disorders is during adolescence (Currin, Schmidt, Treasure, & Jick, 2005). This means that many individuals that suffer from eating disorders will develop these problems whilst at school or in the transition from school to university or employment. Universal prevention is therefore best placed prior to this point. Secondary schools offer a valuable site for prevention because they provide a point of contact with almost all 11-18 year old children and their parents or carers. This means that interventions can be delivered through these existing social structures to large proportions of young people, including those who may be at high-risk for developing an eating disorder.

The challenge of how to recruit into selective programmes

One of the first draws to universal prevention is that there is an inherent difficulty in selective prevention related to how you recruit individuals into the programme. There are two options: either you screen a population and then select those people who are flagged up as being at risk; or you advertise and allow individuals to select themselves based on their feeling that they fulfil the risk criterion. Both options have been used in eating disorder selective prevention and both face difficulties.

In the first instance, you face the challenge of telling a young person that they are at risk for an eating disorder. This may be perceived as stigmatising. Within a school setting, for example, it is very difficult to take students out of lessons and have them feel comfortable being involved with the programme. This means that the acceptability and uptake of the intervention can be very poor. Examples of this difficulty have been reported by Varnado-Sullivan et al. (2001), where the uptake of a selective prevention programme was only two students from fifty-four identified as being at risk. One way of dealing with this difficulty is to present the programme as something other than for eating disorder prevention. Participants may, for example, be told the project is a leadership programme, or focuses on other, less stigmatising factors. However, this seems to be an ethically dubious approach as it is difficult to argue that participants are fully informed about the nature of the trial.

The second option for recruitment is to rely on individuals self-selecting into the programme. This is a very common strategy (Celio et al., 2000; Heinicke et al., 2007;

Stice, Chase, et al., 2001). It has the benefit that individuals are on the whole very motivated to take part, which can reduce the problem of drop out. However, it is very likely that this recruitment method misses those individuals who are perhaps most in need. In the case of eating disorders in particular, those individuals who experience a lot of shame about, for example, binge eating, or purging behaviours (Hepworth & Paxton, 2007), are unlikely to approach a programme, as are those individuals who are experiencing some ego-syntonic symptoms. So, although self-selection works well, those vulnerable individuals, who may be on the path to developing clinically severe eating disorders, are unlikely to become participants, and therefore the prevention efforts are only effective for a particular subset of those at risk.

Universal prevention avoids these limitations by working with all individuals in a population. Certain high-risk individuals are not selected from amongst their peers and expected to be motivated to address a problem that may affect them in the future. Furthermore, there is no need to present the programme as something other than it actually is. And, perhaps most importantly, universal prevention provides the opportunity to work with all individuals and so may prevent a person from reaching a stage that would act as a barrier to them approaching selective prevention efforts or, eventually, treatment.

A theoretical drive for universal prevention

Aside from these practical concerns, there is a clear theoretical cause for approaching prevention from a universal position. The point here is that we have good reason to believe that eating disorders are, in part, sociocultural disorders (Keery, Van den Berg, & Thompson, 2004; Thompson, Coovert, & Stormer, 1999). This means that factors in the social environment – attitudes of family members and peers, exposure to messages inherent in wider media, etc. – are risk factors for developing these conditions. The implications of this for prevention are that administering prevention efforts to all individuals can be understood as helping those who are at risk by working with those who are not at risk, but who put others at risk by perpetuating an unhelpful social environment.

This point has been made previously by Smolak, Harris, Levine, and Shisslak (2001), and several whole school interventions have shown that challenging the attitudes of

those in the wider social environment (that is, working with peers, teachers etc.) can be an effective way of reducing risk for high-risk individuals (McVey et al., 2007; Piran, 1999). In this way, prevention efforts need not solely be designed to make a high-risk individual resilient to their harmful environment; rather, they may boost this resilience in conjunction with challenging the environment itself. Theoretically, then, universal interventions can absolutely be justified.

A challenge for universal prevention

One challenge for universal prevention comes from the fact that it is particularly difficult to demonstrate the efficacy of universal programmes with conditions that have low incidence rates. Given the annual primary care incidence of anorexia nervosa and bulimia nervosa in 10 – 19 year olds in the UK is approximately 37 per 100,000 (Currin et al., 2005), we would expect to see very few new cases of eating disorders each year within, for example, one particular secondary school. This means that a study must have huge numbers of participants, for example working with hundreds of schools, in order to have the statistical power to detect differences in such small baseline incidence rates.

If it is so difficult to demonstrate whether programmes work, why would we pursue universal prevention at all? There are two reasons. The first is that the risk factors targeted in prevention programmes may be legitimate targets for prevention in their own right. I will discuss in full the choice of risk factors for prevention programmes in Chapter 4, but a good example at this point is that of body dissatisfaction. Body dissatisfaction is an important risk factor for eating disorders (Jacobi, Hayward, de Zwaan, Kraemer, & Agras, 2004; Stice, 2002). It is also a pervasive problem. Studies with adolescents suggest that around one quarter young women report being dissatisfied with their body (Stice & Whitenton, 2002). Importantly, we also know that, aside from the important link with eating disorders, body dissatisfaction is associated with negative outcomes, including dieting, low levels of physical activity (Neumark-Sztainer, Paxton, et al., 2006), depressed mood and poor self-esteem (Paxton, Neumark-Sztainer, et al., 2006).

This means that although it is very difficult (statistically speaking) to demonstrate the efficacy of universal programmes on eating disorder incidence, the same problem of low incidence and/or prevalence rates does not apply to risk factors, such as body

dissatisfaction, that are common. And, given the negative outcomes associated with these risk factors in their own right, we can justify programmes even without making the theoretical leap from the reduction of risk factors to assuming that this will have some effect on the incidence of eating disorders. In this sense, the unmeasurable reduction in eating disorder incidence may be considered to be an ‘added benefit’ of programmes targeting risk factors for eating disorders, and the prevalence of risk factors is sufficient that we can statistically demonstrate the efficacy of programmes on these factors.

The second reason for pursuing universal prevention, despite necessarily small effects on eating disorder incidence, comes from wider public health literature, which suggests that if widely disseminated, even programmes with small effect sizes can have important public health benefits. In a recent article on tackling the burden of mental health, Kazdin and Blase (2011) make the point that these widely disseminable interventions are a valuable addition to the portfolio of mental health preventions/treatments:

“An intervention with a weak but reliable effect that can reach large numbers with little cost would be worth having and could only be bumped out of place (think of the Olympic sport of curling) by another intervention with a greater ES [effect size] that addressed the same population, cost, and so on.” – (Kazdin & Blase, 2011, p. 33)

I have already discussed the appeal of school interventions in terms of their dissemination opportunities through these existing social structures, and because of this, it is feasible that school-based prevention could be widely disseminated. Even though effect sizes of universal interventions are likely to be smaller than selective interventions, the fact that they are easier to disseminate to large numbers may mean that the overall public health benefit is sufficient to justify pursuing them alongside selective approaches.

The importance of having teachers involved

A further important consideration is the nature of the people involved in delivery of material in schools. The essential divide is between using regular school staff and using trained facilitators, who are usually the psychologists that developed the material. The majority of recent studies with adolescent groups rely on external facilitators (Canetti, Bachar, Gur, & Stein, 2009; McCabe, Ricciardelli, & Karantzas, 2010; Richardson &

Paxton, 2010; Weiss & Wertheim, 2005; Wilksch & Wade, 2009). Although meta-analyses show that facilitator-delivery is associated with higher effect sizes (Stice & Shaw, 2004; Stice, Shaw, et al., 2007) there are good reasons to have teachers and school staff at the heart of the prevention of eating disorders.

First, teachers are uniquely well positioned in the delivery role, having access to hundreds of young people in the age range of interest for universal prevention of eating disorders. In most UK schools, PSHE lessons plans are produced and disseminated by a single coordinator and so teachers are accustomed to using material developed elsewhere.⁸ Many schools also practice cascade training, such that any member of staff attending a training session would be expected to pass that training on to others in the school. These factors mean that even complex interventions with multiple components can be disseminated easily and widely through the existing school system. In contrast, reliance on delivery by a small number of highly qualified psychologists will be expensive and logistically demanding.

Smolak et al. (2001) have made this point previously:

“It is reasonable to expect that curricular and other school-based interventions will be successful on a large scale to the extent that they can be applied by teachers rather than expert professionals.” – (Smolak et al., 2001, p. 261)

As discussed above, this wide dissemination is essential: programmes with small effect sizes can only be important additions to the prevention portfolio if they have the potential to be wide-ranging.

Second, engaging teachers in prevention initiatives helps to promote a school-wide approach to tackling eating pathology. Teachers may apply the principles of the prevention at any point in the school day, meaning that involvement can extend beyond the allocated delivery time. A number of authors have called for a move beyond an individual-focus in the prevention of eating disorders, with an emphasis rather on challenging wider environments (Austin, 2012; Taylor, Franko, Neumark-Sztainer,

⁸ PSHE, or Personal, Social, Health and Economic Education lessons are part of the national curriculum and focus on developing life skills, including topics such as drugs education and sex education.

Paxton, & Shapiro, 2007; Thompson & Heinberg, 1999). And these approaches do show promise. For example, in a ballet school setting, Piran (1999) demonstrated that making systematic changes within the school reduced the incidence of eating disorders over ten years in this high-risk group. On a larger scale, a recent study is the first to show that a public health campaign to promote healthy body image (the Québec Charter for a Healthy and Diverse Body Image) has potential in terms of the extent of reach and acceptability of the message (Gauvin & Steiger, 2012). Involving teachers in the delivery of intervention material presents this issue as something with which staff are concerned, and so is one step towards introducing wider systemic changes in schools.

Third, is it of note that school staff generally show an interest in being involved in the prevention of eating disorders. From a survey of 114 school staff, Neumark-Sztainer, Story, and Collier (1999) report that 80 percent of staff think that offering a prevention programme to all students is important. In the same sample, 60 percent were interested in being involved in this sort of programme, despite only 21 percent having some experience of these lessons in the past.

Although teachers have great potential in eating disorder prevention, a number of points have been raised about how to ensure that teachers are “personally and professionally prepared” for this role (Yager & O'Dea, 2005, p. 461). First, there are inconsistent levels of knowledge about eating disorders reported by school staff (O'Dea & Abraham, 2001; Price, Desmond, Price, & Mossing, 1990). Programmes may have detrimental effects if common misconceptions about body image and eating disorders are unknowingly reiterated by participating staff. Second, teachers also need to be clear on the distinction between prevention and treatment. There is a risk that teachers may interpret their role as providing treatment for eating disorders, which actually require referral to qualified mental health professionals (Yager & O'Dea, 2005). Third, some teachers themselves have unhelpful attitudes towards eating and weight that may be modelled by students receiving lessons on these topics. Indeed, in a study of physical education and home economics teachers, 14 percent of women reported currently having an eating disorder (O'Dea & Abraham, 2001). These considerations highlight that training for teachers about the risk factors and symptoms for eating disorders, as well as appropriate avenues for getting help, are of utmost importance prior to

implementation of any programme. This is in line with teachers' self-reported needs in this area (Neumark-Sztainer et al., 1999). McVey, Gusella, Tweed, and Ferrari (2008) have shown that an online educational intervention for school staff is effective in improving knowledge about the aetiology of dieting and weight concerns in teachers, suggesting that training on these topics is likely to be helpful. In addition, a specific focus on personal attitudes of staff towards weight and shape may be necessary to ensure consistency of the messages presented to students.

Overall, teachers are a valuable resource for prevention scientists working in adolescence. It is undeniable that there are unique barriers to having eating disorder prevention material delivered by teaching staff. However, if we are able to overcome these challenges, teacher-delivered universal programmes have the potential for population-wide reach and meaningful impact.

The aims and outline of this thesis

Within the framework presented in this chapter, the overall objective of this thesis was to develop and evaluate a universal prevention programme for eating disorders designed to be delivered by usual school teachers in UK secondary schools.

As such, the specific aims were:

1. To build an evidence base from which to develop intervention material through systematically assessing whether a putative causal risk factor for body dissatisfaction – fat talking – meets requirements for this status.
2. To investigate ways of developing acceptable eating disorder prevention programmes in schools through exploring adolescents' experiences of body dissatisfaction and pathological eating and their recommendations for prevention strategies.
3. To promote acceptability and feasibility of material for delivery by secondary school staff through consulting with these key stakeholders during the development of school-based prevention material.
4. To develop a universal intervention suitable for delivery by normal school teachers based on empirical work regarding causal risk factors for eating disorders and incorporating recommendations from students and staff.

5. To evaluate the feasibility, acceptability and efficacy of this universal intervention by means of clustered randomised controlled trial.

The structure of this thesis mirrors these aims. Chapter 2 outlines a systematic review and meta-analysis assessing the effect of fat talking on body dissatisfaction. Chapter 3 reports on a qualitative study with adolescents exploring their experiences of body dissatisfaction and eating pathology and recommendations for prevention in schools. Chapter 4 examines the process of intervention development within the Medical Research Council (MRC) guidelines for complex interventions (Campbell et al., 2000). This encompasses consultation with school staff as well as a review of causal risk factors for eating disorders. Finally, Chapter 5 describes the evaluation of the intervention through clustered randomised controlled trial, and Chapter 6 draws out overall conclusions from this work and provides a general discussion of implications and future directions.

Chapter 2: Is Fat Talking A Causal Risk Factor For Body Dissatisfaction? A Systematic Review And Meta-Analysis

Introduction

The theory underlying preventative efforts is that there are risk factors, which increase the likelihood that an individual will develop a particular condition, and there are protective factors, which buffer the individual against developing a condition (Coie et al., 1993). Preventative programmes are designed to reduce risk factors and/or increase protective factors, with the promise of altering the incidence of the condition in question. In designing an intervention, is it therefore essential that we understand the nature of risk and protective factors for eating disorders, taking into consideration which of these factors are modifiable and so may be targeted through intervention.

Body dissatisfaction as a risk factor for eating disorders

It is widely acknowledged that the aetiological pathways for each of the eating disorders are multifactorial, and involve biological, psychological and social factors (Jacobi et al., 2004; Stice, 2002). A comprehensive review of risk factors for eating disorders has shown that the majority of putative factors explored in studies are general in that they are not known to distinguish between anorexia nervosa, bulimia nervosa and binge eating disorder (Jacobi et al., 2004).⁹ In addition, many of the factors are not specific to eating pathology, but are also known to be related to a range of psychiatric disorders.

Body dissatisfaction, defined as “negative subjective evaluations of one’s physical body, such as figure, weight, stomach and hips” (Stice & Shaw, 2002, p. 985), has emerged as an important risk factor for eating pathology (Jacobi et al., 2004; Stice, 2002, and discussed in more detail in Chapter 4). Roughly one quarter of young women report feeling negatively about their bodies (Stice & Whitenton, 2002), and recent studies with participants from a range of populations suggest that body dissatisfaction is also a common problem for young men and across different cultural backgrounds, particularly in those geographical regions of higher socio-economic status (Labre, 2002; Mellor, McCabe, Ricciardelli, & Merino, 2008; Swami et al., 2010; Xie et al., 2006).

⁹ As noted by Jacobi et al. (2004), the lack of specificity of risk factors is likely in part to be due to genuine overlapping of aetiological pathways, but also in part to be an artifact of a paucity of studies with sufficient numbers to have statistical power to detect differences between distinct eating disorder diagnoses, particularly those with lower incidence (e.g. anorexia nervosa).

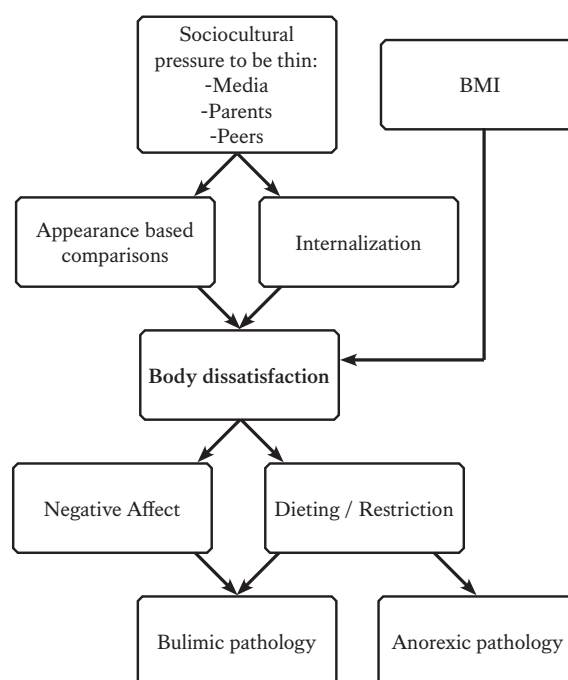


Figure 2.1: The role of body dissatisfaction in eating pathology. Based on Stice (2001), Keery et al. (2004) and Stice and Shaw (2002).

Body dissatisfaction has been conceptualised as part of the ‘final common pathway’ through which distal risk factors act on eating pathology (See Figure 2.1, Keery et al., 2004; Stice, 2001; Stice & Shaw, 2002). The theoretical understanding is that body dissatisfaction drives dieting through the belief that caloric restriction reduces body fat, and, at least under certain conditions, dieting increases the risk for both anorexic and bulimic pathology (Stice & Shaw, 2002).¹⁰ In addition, body dissatisfaction is thought to increase negative affect, which promotes binge eating (Stice & Shaw, 2002). These assumptions have been largely supported by empirical research (Stice, 2001; Stice & Shaw, 2002; Van den Berg, Thompson, Obremski-Brandon, & Coover, 2002).

Some of the proposed risk factors for body dissatisfaction are also shown in Figure 2.1. These models suggest that elevated body mass index (BMI) increases body

¹⁰ The complex relationship between dieting and eating pathology is explored further in Chapter 4. At this point, it is suffice to say that dieting has been hypothesized to be linked to anorexic pathology if successful weight loss attempts are reinforced, and dieting has been linked to bulimic pathology due to an abstinence-violation effect, and/or an increased risk of disinhibited eating when eating is controlled cognitively, rather than based on physiological cues (Stice & Shaw, 2002).

dissatisfaction when individuals are in the cultural context of a thin-ideal. Sociocultural pressure to adopt this ideal comes from three potential agents: media, family and peers (Keery et al., 2004; Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999). This sociocultural pressure can be conceptualised in many different ways: the extent of appearance-related media viewing; modelling of parental body dissatisfaction; peer teasing regarding weight and shape, and so forth. According to the work of Thompson and colleagues (Keery et al., 2004; Thompson, Heinberg, et al., 1999), this pressure affects body dissatisfaction through two pathways: increasing endorsement of the ideal of thinness by the individual, and internalisation of these views; and an increase in the tendency to make appearance-related comparisons with others. Body dissatisfaction develops because leanness is valued highly and one's own body is unfavourably compared with that of unrealistic ideals presented and lauded by the media, family and peers.

Fat talk: A potential causal risk factor for body dissatisfaction?

One potential element of this sociocultural pressure, which has received increasing attention in recent years, is known as appearance conversations, or *fat talking*. First introduced by Nichter and Vuckovic in the mid 1990s, fat talk was defined as a form of ritualised derogatory talk focusing on weight and shape frequently undertaken by girls and women, which served the purposes of consolidating peer group membership and building bonds between friends (Nichter & Vuckovic, 1994). Ousley, Cordero, and White (2008) assessed transcripts of undergraduate students talking about eating and body image and revealed five common fat talking topics: (1) self-comparison to ideal eating and exercise habits; (2) fears of becoming overweight; (3) how eating and exercise habits compare to others; (4) evaluation of others' appearances, and (5) meal-replacements and muscle-building strategies.

Studies of fat talking suggest that experiencing and participating in fat talk is a common phenomenon for women and that responding to weight- and shape-related talk with self-derogatory comments (e.g. "You're not fat, look at *my* thighs") is considered to be normative (Britton, Martz, Bazzini, Curtin, & LeaShomb, 2006; Nichter, 2001; Salk & Engeln-Maddox, 2011a; Smith & Ogle, 2006). Further assessments have shown that fat talking is found in both adolescent (Wertheim, Paxton, Schutz, & Muir, 1997) and

adult populations (Salk & Engeln-Maddox, 2011b), and a similar form of interaction involving discussion of muscularity is reported by men (Jones & Crawford, 2005).

The growing interest in fat talking is part of a broader focus on the roles that peers may play as agents of sociocultural pressure (e.g. Field et al., 2001; Hutchinson, Rapee, & Taylor, 2010; Lieberman, Gauvin, Bukowski, & White, 2001; Mueller, Pearson, Muller, Frank, & Turner, 2010; Paxton, Schutz, Wertheim, & Muir, 1999). Fat talking has been proposed as one element of the 'peer appearance culture' (Jones, Vigfusdottir, & Lee, 2004) that may be of particular relevance in promoting an unhelpful attitude towards the thin-ideal. In this sense, although Nichter and Vuckovic (1994) originally noted the role of fat talking in group solidarity, the inadvertent consequence of fat talking may be that weight, shape and eating are being signalled as important for group members, which in turn may lead to concerns over body dissatisfaction and eating pathology.

This theoretical link between fat talking, internalisation of the thin-ideal and body dissatisfaction has been the driving force behind elements of several interventions. The cognitive dissonance-based eating disorder intervention developed by Stice and colleagues (Stice & Presnell, 2007) involves a session on managing fat talking with friends. Similarly, an Australian intervention for early adolescents – *Happy Being Me* – includes a session on recognising fat talking and strategies for tackling these interactions (Richardson & Paxton, 2010).

In addition to interventions, several university-based and public campaigns have aimed to promote body confidence through targeting fat talking. For example, the Tri-Delta Sorority, began an international *End Fat Talk* campaign (Delta Delta Delta Fraternity, 2011), which encourages young women to recognise fat talking in themselves and those around them and to replace these statements with those that are non-appearance-based and self-affirming. Universities are encouraged to host *Fat Talk Free Weeks* in which the problem of fat talking is raised with students and campaigns to build positive friendship interactions are disseminated (Succeed Foundation, 2012). In addition, several online campaigns have directly targeted fat talk, such as *Operation Beautiful* (Boyde, 2010), which encourages individuals to combat fat talking through placing anonymous positive self-statements in pertinent public spaces.

The existence of campaigns, interventions and models of eating pathology incorporating fat talk suggest that there is an accepted understanding that fat talking is very important for, and perhaps causally associated with, body dissatisfaction. However, to date there has been no systematic review of literature concerning fat talking, which may provide substantial evidence in favour of this position. This review attempts to resolve this lack of synthesis and to provide definitive answers to the question of the extent to which we can say that fat talking is a causal risk factor for body dissatisfaction.

Defining causal risk factors

A clear definition of risk factor terminology has been provided by Kraemer et al. (1997), and it is this that will be used throughout this paper. Kraemer et al. make a distinction between the following terms:

- *Correlate*: a factor associated with a particular outcome (e.g. body dissatisfaction)
- *Risk factor*: a correlate that precedes the outcome
- *Causal risk factor*: a risk factor which, when manipulated, alters the outcome.

These terms give us guidelines as to the results expected across different study designs (Levine & Murnen, 2009; Stice, 2002). Fat talk can be considered a correlate of body dissatisfaction if cross sectional studies show associations between fat talking and body dissatisfaction. Fat talk can be considered a risk factor for body dissatisfaction if longitudinal studies show that fat talking prospectively predicts changes in body dissatisfaction. And, finally, fat talking can be considered a causal risk factor if experimental studies show that a manipulation of fat talking is associated with a change in body dissatisfaction.

Objectives

In line with this, the objective of this review is to answer the following questions:

- Is fat talking cross sectionally associated with increased body dissatisfaction?
- Is fat talking prospectively associated with increases in body dissatisfaction?
- Is experimental manipulation of fat talking associated with increases in body dissatisfaction?

Methods

Protocol and registration

An unregistered review protocol was produced prior to beginning searches. All details are outlined below.

Eligibility criteria

Studies were eligible for inclusion in the review if they met the following criteria:

- Studies published in English between January 1990 and January 2012.
- Cross sectional studies that included at least one measure of fat talking and at least one measure of body dissatisfaction.
- Prospective studies that included at least one measure of fat talking, assessed at baseline, and at least one measure of body dissatisfaction, assessed at baseline and at least one follow up point.
- Experimental studies that randomly manipulated exposure to fat talking and included at least one measure of body dissatisfaction, which was assessed prior to and post exposure.

The rationales behind these criteria are as follows. Setting the earliest start date as 1990 was based on the fact that the primary text introducing the concept of fat talking was published in 1994 (Nichter & Vuckovic, 1994), and so it is highly unlikely that studies assessing this phenomenon would occur many years prior to this point. Cross sectional studies without a measure of fat talking and body dissatisfaction would not allow us to assess the association between these variables. Longitudinal studies that did not report body dissatisfaction at both time points would not allow us to conclude that fat talking preceded changes in body dissatisfaction. Similarly, experimental studies were required to have measures of body dissatisfaction prior to and post exposure to fat talking to ensure that group differences at follow up were not due to baseline differences. Random allocation to exposure was necessary to determine that change in body dissatisfaction was due to exposure to fat talking rather than an unmeasured variable. As such causality could be assumed.

Information sources and search

Three electronic databases – Psychinfo, Web of Science and SCOPUS – were searched using the following search terms: “fat talk” OR “appearance conversations”. The publication year was limited to 1990 – 2012. The search was conducted on 12/02/2012. An example search strategy using SCOPUS is:

```
TITLE-ABS-KEY("fat talk" OR "appearance conversations")
AND PUBYEAR > 1989
```

In addition, reference checking of located articles was conducted, as were hand searches (years 1990-2012) the following relevant journals:

- Body Image
- Sex Roles
- Journal of Youth and Adolescence
- Eating Disorders: The Journal of Treatment and Prevention.

Study selection

Study selection was conducted by one researcher (HS). Studies were screened in three stages: title, abstract and full text. First, titles of all located articles were reviewed and those that were clearly unrelated to this topic were excluded. Second, the abstracts of all located articles were assessed and those that were clearly not relevant (e.g. a qualitative study, or a book review) were excluded. Any ambiguous abstracts were assessed at full text. Finally, the full texts of remaining manuscripts were assessed for eligibility using the criteria outlined above.

Data collection process

Data extraction was conducted by one researcher (HS). Data collection was performed with a standardised form with the following categories: author; date of publication; journal; study design; sample size; gender of participants (% female); age of participants (mean, standard deviation); country where study was performed; measure of fat talking; measure of body dissatisfaction, summary measure (see below); and, where relevant: length of follow up; experimental paradigm.

Risk of bias within studies

Few formal means of assessing risk of individual study bias in systematic reviews exist for studies of varying designs, such as cross sectional and prospective research designs (Sanderson, Tatt, & Higgins, 2007). In this review, study quality was based on a checklist provided by Fowkes and Fulton (1991) for the critical appraisal of studies. As the original checklist was produced for a wide range of study designs, including treatment trials and case-control studies, the eight criteria that were most relevant for current purposes were used. The risk of bias items are shown in Table 2.1, below. Each study was rated as at higher risk of bias, or lower risk of bias for each item.

Table 2.1: Items used to assess study quality

Category	Item	Criteria (higher risk of bias)	Study types
Sample characteristics	Sampling method	Sampling not random	C, P, E
	Non-respondents	% non-respondents > 65%	C, P, E
Measure characteristics	Validity and reliability of measure of BD	Measure not validated, or measure adapted from validated version	C, P, E
	Validity and reliability of measure of FT	Measure not validated, or measure adapted from validated version	C, P
Completeness	Attrition	Significant differences between drop outs and non-drop outs	P, E
	Missing data	Significant differences between participants with and without missing data	C, P, E
Experimental paradigm	Success of randomisation	Significant differences between groups at baseline	E
	Blindness	Participants not blind to condition	E

Note: C = Cross sectional, P = Prospective, E = Experimental, BD = Body dissatisfaction, FT = fat talking.

The specific criteria used to determine higher risk of bias are outlined in Table 2.1, above. For sample characteristics, non-random sampling methods, such as approaching local schools or using university students, decreases the chances that the sample are

representative of the general population. In addition, it is important to note the percentage of those who were approached that did not agree to participate in the research (non-respondents). The higher the percentage of non-response the greater the likelihood that those who participated are systematically different from those who did not. The cut off for how much non-response is too much non-response will always be arbitrary. In this review, the figure of 65 percent was used as this is the standard set in the *British Medical Journal* for high quality studies (www.bmj.com).

In terms of measure characteristics, using non-validated measures increases the risk that the study is not actually assessing what it intends. In this review, a strict criterion was used, in which higher risk of bias included any adjustments made to validated measures, such as adding or removing items.

In a similar fashion to non-response, incompleteness of data, either from attrition or incomplete questionnaires, may bias data if those with missing data are different from those who participated in full. As such, reported outcomes are not necessarily representative of the population. Risk of bias from incompleteness can be assessed through comparing those with and without missing data on variables for which there are data (usually baseline measures). In this review, studies were deemed at higher risk of bias from incomplete data if there were statistically significant differences between those with and without complete data.

Finally, for the experimental studies, risk of bias may be introduced if, despite randomisation, the experimental and control group differ at baseline, as the differences at post-test may be attributable to these differences rather than the experimental condition. Studies were considered at higher risk of bias if there were statistically significant differences between the groups at baseline. In addition, performance of participants may be altered if they are aware of the condition to which they are assigned. As such, studies were considered to be at higher risk of bias if participants were not blinded to condition.

Summary measures

If papers did not report required summary measures (outlined below), this information was requested from the authors. Studies for which authors did not provide required data following two email requests were excluded from the review.

Cross sectional data

For cross sectional data an unadjusted value of the correlation coefficient, r , of the association between the measure of fat talking and the measure of body dissatisfaction was extracted. Data were taken from all cross sectional studies as well as baseline cross sectional associations from longitudinal studies. Baseline data from longitudinal studies were not used if cross sectional associations from the same sample were already reported in an included cross sectional study. Where possible values of r were extracted separately for males and females. If standardized regression coefficients (β) of the association between fat talking and body dissatisfaction were reported, these were extracted, as they are equivalent to r . For each analysis, the sample size and, where reported, the upper and lower bounds of the 95 percent confidence intervals for r were also recorded.

As the correlation coefficient is not normally distributed and its variance is not constant, a Fisher z - transformation was used to normalize the distribution and stabilize the variance. The formula used for this transformation was:

$$z = 0.5 * \log_c \left(\frac{1 + r}{1 - r} \right)$$

For the transformed z , the approximate standard deviation is:

$$SD_z = 1/(n - 3)$$

All further analyses and calculation of confidence intervals were conducted using the z scores. The estimates and confidence intervals obtained in these analyses were then back-transformed to obtain the respective estimates and confidence intervals for the overall correlations.

Prospective data

For prospective studies an unadjusted value of r of the association between the measure of fat talking at baseline and the measure of body dissatisfaction at follow up, controlling for the level of body dissatisfaction at baseline, was extracted. Where

possible values of r were extracted separately for males and females. The value of r was taken from partial bivariate correlations, adjusting for baseline body dissatisfaction, or from standardized regression coefficients from regressions of baseline fat talking on body dissatisfaction at follow up, controlling for baseline levels of body dissatisfaction. Again, for each analysis, the sample size and, where reported, the upper and lower bounds of the 95 percent confidence intervals for r were also recorded. As described in the section above, a Fisher z – transformation was applied to values of r for all analyses.

Experimental data

For experimental studies, a standardised mean difference (d) was computed using the recommendations by Morris (2008) for pre-test post-test control-group designs. This measure is based on the difference between intervention and control group in mean pre-test post-test change, divided by the pooled standard deviation of both groups at pre-test. This value is based on the formula for Hedges g (Hedges, 1981), but takes into account the differences between groups as pre-test. The following formula was used:

$$d = c_p \left[\frac{(M_{post,E} - M_{pre,E}) - (M_{post,C} - M_{pre,C})}{SD_{pre}} \right]$$

where, M was the mean, E was the experimental group, and C was the control group. The pooled pre-test standard deviation (SD_{pre}) was calculated as:

$$SD_{pre} = \sqrt{\frac{(n_E - 1)SD_{pre,E}^2 + (n_C - 1)SD_{pre,C}^2}{n_E + n_C - 2}}$$

and bias adjustments approximated by:

$$c_p = 1 - \frac{3}{4(n_E + n_C - 2) - 1}$$

Synthesis of results

All analyses were conducted using STATA, Version 12 (StataCorp., 2011). If scales had been reverse scored (e.g. low score = high body dissatisfaction), this was amended such that scoring was consistent between studies. Where sufficient numbers of studies were located, results were synthesised using meta-regression. Gender, age and cultural background of participants were considered as potential moderating factors of the relationship between fat talking and body dissatisfaction. Age was categorised into child

(<11 years), adolescent (11 – 18 years) and adult (>18 years). If studies had sample ages that crossed these boundaries the study was allocated to the category in which the majority of participants lay. Cultural background of participants was based on the location of the study, with studies undertaken in Europe, North America or Australia considered 'Western', and those conducted in Asia considered 'Asian'.

The proportion of variation in estimates that was due to heterogeneity was assessed using I^2 . Significant heterogeneity suggests that differences in effect estimates between studies are unlikely to be due to chance, but rather other factors, such as differences in protocols used. When significant heterogeneity was found, random effects meta-analyses were used, including an error term varying across units. When no significant heterogeneity was found, fixed effects meta-analyses were used.

Risk of bias across studies

Potential for publication bias across studies was assessed using visual inspection of funnel plots (study estimate plotted against standard error). The expected inverted funnel shape of these plots is produced by the fact that the precision of estimates from studies increases as sample size increases (Sterne, Becker, & Egger, 2005). Smaller studies should therefore show a greater variety of effect size estimates. Asymmetry in funnel plots may indicate a publication bias in that smaller studies with null findings are less likely to have been reported. This biases the overall estimate towards a larger estimated effect size. As it can be difficult to assess asymmetry visually (Terrin, Schmid, & Lau, 2005), the Egger and Begg statistical tests were also used. It should be noted, however, that all three approaches are problematic when working with fewer than ten studies (Sterne & Egger, 2005). In addition, funnel plot asymmetry may be caused by a number of factors, only one of which is publication bias (Sterne et al., 2005).

Additional analyses

Sensitivity analyses were conducted based on the risk of bias within studies. Based on the checklist of risk of bias discussed above, meta-analyses were re-run excluding studies with higher risk of bias.

Results

Study selection

The flow diagram of study selection is shown in Figure 2.2, below. Electronic searches of databases revealed 48 studies. In addition 14 papers were located through reference checking and hand searching of relevant journals. This resulted in 62 studies, being considered for inclusion.

Two papers were excluded based on the title revealing that the paper did not address body dissatisfaction. A further 17 papers were excluded following review of the abstract: thirteen of these papers were book reviews and so did not include any empirical work; one paper reported a qualitative study; one paper was an unpublished dissertation; and the remaining two papers did not address fat talking.

The full texts of 43 papers were assessed for eligibility. Twenty five papers were excluded at this point for the following reasons: four studies did not include a measure of body dissatisfaction; nine studies did not include a measure of fat talk; one study was a case-control study; ten studies did not assess the relationship between fat talking and body dissatisfaction; and one experimental study did not include a baseline measure of body dissatisfaction.

Two eligible cross sectional studies (Chen & Jackson, 2012; Paxton et al., 1999) and two eligible longitudinal studies (Arroyo & Harwood, 2012, Studies 1 & 2) did not report the required values of r . Authors of these papers were contacted via email. Data were provided for three studies (Arroyo & Harwood, 2012, Studies 1 & 2; Chen & Jackson, 2012). In one cross sectional study (MacDonald Clarke, Murnen, & Smolak, 2010) the reporting of findings was ambiguous regarding the direction of the association between fat talking and body dissatisfaction. Attempts to gain clarification from the corresponding author were not successful and so it was assumed that the direction of the relationship was as expected given that no comment had been made to the contrary. Overall, this resulted in 17 studies, being deemed eligible for inclusion.

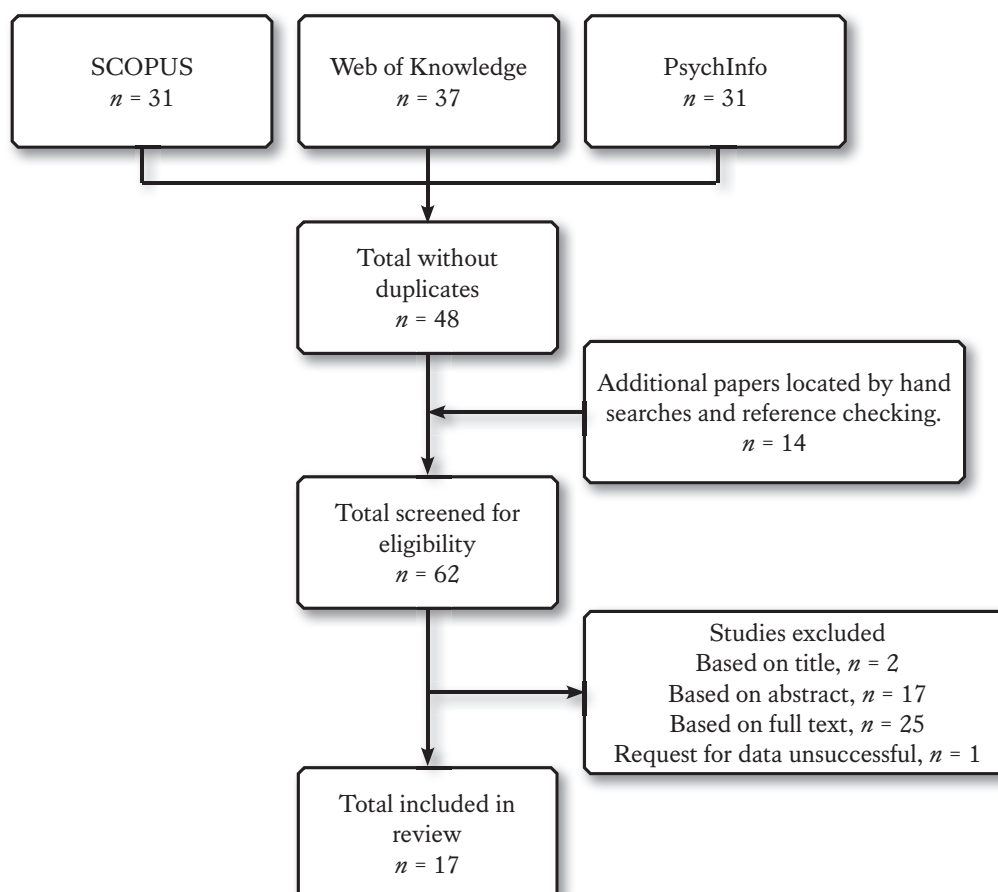


Figure 2.2: Flow diagram of study search and selection.

Study characteristics

The review included 17 studies: 12 cross sectional studies, four prospective studies, and one experimental study. The studies were published between 2003 and 2012. Five studies had child samples, seven studies had adolescent samples, and the remaining five studies had adult samples. Sample sizes varied greatly, ranging from 57 to over 1,000. Eight studies focused solely on females, two studies focused solely on males and the remaining seven studies had mixed samples. The majority of studies were conducted in the USA ($n = 9$, 53%); five were conducted in Australia (29%), two in China (12%), and one in Ireland (6%).

Measurement of fat talking

The majority of studies (63% cross sectional or prospective studies) measured fat talking with the *Appearance Conversations with Friends Scale* (Jones et al., 2004). The five items of this scale are designed to assess “how often students talked with their friends about expectations for their bodies and for appearance enhancements” (Jones et al., 2004, p.

329) and take the form of statements such as “my friends and I talk about the size and shape of our bodies” with which participants have to agree or disagree on a five point Likert scale. One study used the *Fat Talk Scale* (MacDonald Clarke et al., 2010). This scale presents participants with nine fat talk scenarios, such as: “Naomi is having a bad day. She just does not feel herself and she is kind of down. While walking to class one of her friends says that she looks nice today. She replies, ‘No, I’m having a fat day’.” Participants are asked to rate how frequently they have similar experiences. The remainder of studies used an unvalidated question(s), such as “Do you ever talk about the way your bodies look with your friends?” to assess fat talking.

One study (Arroyo & Harwood, 2012: Study 2) had two measures of fat talking, one of which assessed saying fat talking, and the other of which assessed hearing fat talking. Saying fat talking was chosen as the main outcome for the study as this measure was conceptually most similar to the most commonly used outcome, the *Appearance Conversations with Friends Scale*. All analyses were also repeated using the hearing fat talking measure from this study (not presented here) and no differences in results were found.

Measurement of body dissatisfaction

A wide variety of measures were used to assess body dissatisfaction. The most commonly used scales were as follows: seven studies used the *Body Esteem Scale* (Mendelson, Mendelson, & White, 2001); five studies used the *Body Dissatisfaction* subscale of the *Eating Disorder Inventory* (Garner, 1991); two studies used the *Children’s Figure Rating Scale* (Tiggemann & Wilson-Barrett, 1998); two studies used the *Satisfaction and Dissatisfaction with Body Parts Scale* (Berscheid, Walster, & Bohrnstedt, 1973). The remaining study used the *Contour Drawing Rating Scale* (Thompson & Gray, 1995).

In three studies, two separate measures of body dissatisfaction were used. One measure was chosen from each study for inclusion in the review. This decision was based on, in the first instance, the measure that was better validated, and, second, on the measure that was conceptually broader (e.g. body dissatisfaction over weight concern).

Risk of bias within studies

Results for individual studies from the checklist assessing risk of bias are shown in Table 2.2. None of the studies used random sampling techniques, raising the possibility that the samples were not representative of the population. For several items, non-reporting was a problem: only six studies (35%) reported the percentage of non-respondents, and no studies (0%) reported whether participants with missing data were significantly different from participants with complete data. It was therefore difficult to meaningfully summarize across studies on these factors. For those studies that did report percentage of non-respondents, four (67%) were deemed at higher risk of bias due to a high rate of non-response (>65%). Two studies did mention management of missing data (Chen & Jackson, 2012; Shroff & Thompson, 2006), but in both instances this involved casewise deletion of participants with missing data. No information was reported regarding whether these studies differed on any of the provided data. There was variability between studies in the use of validated measures for body dissatisfaction and fat talking. Three studies (18%) did not use a validated measure of body dissatisfaction. In each instance, this was due to altering individual items from validated scales. Eight studies (50%) did not use a validated measure of fat talking. This included a combination of studies altering existing measures, and using completely unvalidated scales.

Table 2.2: Assessment of risk of bias within individual studies

	Study type	Sampling method	Non-respondents	Measure of BD	Measure of FT	Attrition	Missing data	Success of randomisation	Blindness
Chen and Jackson (2012)	C	+	<i>nr</i>	-	-		<i>nr</i>		
Clark and Tiggemann (2006)	C	+	+	-	+		<i>nr</i>		
Clark and Tiggemann (2007)	C	+	+	-	+		<i>nr</i>		
Dohnt and Tiggemann (2005)	C	+	+	-	+		<i>nr</i>		
Dohnt and Tiggemann (2006a)	C	+	<i>nr</i>	-	+		<i>nr</i>		
Jackson and Chen (2010)	C	+	-	-	-		<i>nr</i>		
Jones et al. (2004)	C	+	<i>nr</i>	+	-		<i>nr</i>		
Jones and Crawford (2005)	C	+	<i>nr</i>	+	-		<i>nr</i>		
Lawler and Nixon (2010)	C	+	<i>nr</i>	-	-		<i>nr</i>		
MacDonald Clarke et al. (2010)	C	+	<i>nr</i>	-	-		<i>nr</i>		
Salk and Engeln-Maddox (2011a)	C	+	<i>nr</i>	-	+		<i>nr</i>		
Shroff and Thompson (2006)	C	+	<i>nr</i>	-	-		<i>nr</i>		
Arroyo and Harwood (2012) – Study 1	P	+	<i>nr</i>	-	+	<i>nr</i>	<i>nr</i>		
Arroyo and Harwood (2012) – Study 2	P	+	<i>nr</i>	-	+	<i>nr</i>	<i>nr</i>		
Clark and Tiggemann (2008)	P	+	+	-	+	-	<i>nr</i>		
Jones (2004)	P	+	-	+	-	-	<i>nr</i>		
Stice, Maxfield, and Wells (2003)	E	+	<i>nr</i>	-			<i>nr</i>	-	-

Note: C = Cross sectional, P = Prospective, E = Experimental, + = high risk of bias, - = low risk of bias, *nr* = not recorded, blank = not applicable.

Outcomes

Criterion 1: Cross sectional association

Cross sectional associations between fat talking and body dissatisfaction were assessed using data from the 12 cross sectional studies as well as the baseline data from three longitudinal studies. Data were not used from the fourth longitudinal study (Clark & Tiggemann, 2008), as the sample were the same as that reported in one of the cross sectional studies (Clark & Tiggemann, 2007). Results are shown in Table 2.4 (p. 66). With effect sizes reported separately (where available) for male and female participants, there were 19 estimates of r .

The planned meta-regressions assessing the potential effect modification of age, gender and cultural background on the association between fat talking and body dissatisfaction were conducted on these studies.¹¹ No effect modification of the relationship between fat talking and body dissatisfaction was found for gender or cultural background. However, age was found to be an effect modifier (overall test for difference between groups, $p < 0.001$), meaning that the nature of the relationship between the variables differed between age groups. As shown in Table 2.3, the correlation in the adult group significantly differed from the correlation in the child group.

Table 2.3: *Estimated effect modification of age group on the cross sectional association between fat talking and body dissatisfaction*

Age Group	Estimated z score	Lower 95% CI limit	Upper 95% CI limit	p value
Child (reference)
Adolescent	0.10	-0.06	0.26	0.21
Adult	0.48	0.27	0.69	<0.001

Note: p value indicates a significant difference from reference group. 95% CI = 95% confidence interval.

¹¹ The two studies (Arroyo & Harwood, 2012: Studies 1 & 2) that did not provide values of r separately for males and females were excluded from the meta-regression for gender.

Table 2.4: Cross sectional data assessing the association between fat talking and body dissatisfaction.

Study	Age	Culture	Gender	Fat talk measure	Body dissatisfaction measure	<i>n</i>	<i>r</i>	95% CI
Arroyo and Harwood (2012)*	Adult	Western	Mixed	6 items	Body Esteem Scale	111	.530	.381 .652
Arroyo and Harwood (2012)*	Adult	Western	Mixed	18 items	Body Esteem Scale	57	.650	.469 .779
Chen and Jackson (2012)	Adolescent	Asian	Female	ACWFS	Satisfaction and Dissatisfaction with Body Parts Scale	738	.153	.082 .223
			Male	ACWFS	Satisfaction and Dissatisfaction with Body Parts Scale	661	.088	.012 .163
Clark and Tiggemann (2006)	Child	Western	Female	ACWFS ¹	Body Esteem Scale	100	.200	.004 .402
Clark and Tiggemann (2007)	Child	Western	Female	ACWFS	Body Esteem Scale	265	.260	.144 .369
Dohnt and Tiggemann (2005)	Child	Western	Female	1 item ²	Children's Figure Rating Scale	81	.000	-.218 .218
Dohnt and Tiggemann (2006a)	Child	Western	Female	3 items ³	Children's Figure Rating Scale	128	-.090	-.259 .085
Jackson and Chen (2010)	Adolescent	Asian	Male	ACWFS	Body Esteem Scale - Weight	749	.120	.049 .190

¹ Two items added: "My friends and I talk about how we can look like our favourite pop stars" and "My friends and I talk about clothes and makeup that will make us look nice", and five point Likert scale reduced to three point Likert scale.

² "Do you ever talk about the way your bodies look with your friends?"

³ "Do you and your friends ever talk about: (1) the way pop stars look; (2) the way other girls in your class look, (3) clothes?"

Study	Age	Culture	Gender	Fat talk measure	Body dissatisfaction measure	<i>n</i>	<i>r</i>	95% CI
Jones, Vigfusdottir, and Lee (2004)	Adolescent	Western	Female	ACWFS	EDI - Body Dissatisfaction	430	.340	.253 .421
			Male	ACWFS	EDI - Body Dissatisfaction	364	.160	.058 .258
Jones and Crawford (2005b)	Adolescent	Western	Male	ACWFS	EDI - Body Dissatisfaction	128	.230	.059 .388
Jones (2004)*	Adolescent	Western	Female	ACWFS	EDI - Body Dissatisfaction	165	.370	.23 .494
			Male	ACWFS	EDI - Body Dissatisfaction	139	.180	.014 .336
Lawler and Nixon (2010)	Adolescent	Western	Female	ACWFS	Contour Drawing Rating Scale	129	.251	.081 .406
			Male	ACWFS	Contour Drawing Rating Scale	111	.077	-.111 .26
MacDonald Clarke, Murnen, and Smolak (2010)	Adult	Western	Female	Fat Talk Scale	Body Esteem Scale	98	.560	.407 .683
Salk and Engeln-Maddox (2011a)	Adult	Western	Female	One item ⁴	EDI - Body Dissatisfaction	143	.410	.27 .538
Shroff and Thompson (2006)	Adolescent	Western	Female	ACWFS	EDI - Body Dissatisfaction	352	.320	.223 .411

Note: The direction of correlations has been standardised such that positive values of *r* indicate higher fat talking being associated with higher body dissatisfaction. ACWFS = Appearance Conversations with Friends Scale, 95% CI = 95% confidence interval. Asterisks indicate prospective studies for which baseline data are included in cross sectional analyses.

⁴ Based on provided definition of fat talking, participants rated how commonly they themselves engage in fat talk when they are with their female friends on a scale ranging from 1 (it's extremely rare) to 5 (it's extremely common).

Exploring further the nature of these age-specific relationships, Table 2.5 shows estimated values of r separately for children, adolescents and adults. As heterogeneity was considerable in the child and adolescent group ($I^2 \geq 72.4\%$), and moderate in the adult group ($I^2 = 42.3\%$), random effect meta-analyses were used. There was no significant correlation between fat talking and body dissatisfaction for children. In contrast, there was a significant correlation between these factors for adolescents and adults. The correlation was small for adolescents and large for adults. Inspection of the confidence intervals shows that the correlation in the adult group was significantly different from that in the child and adolescent groups. The adolescent group was significantly different from the adult group but not from the child group. Forest plots showing these combined effects are presented, in Figure 2.2.

Table 2.5: *Estimated r scores showing the relationship between fat talking and body dissatisfaction in children, adolescents and adults.*

Age Group	Estimated r score	Lower 95% CI limit	Upper 95% CI limit	p
Children	0.10	-0.08	0.27	0.26
Adolescents	0.21	0.14	0.27	<0.001
Adults	0.53	0.42	0.62	<0.001

Note: p values indicate a significant difference from zero. 95% CI = 95% confidence interval.

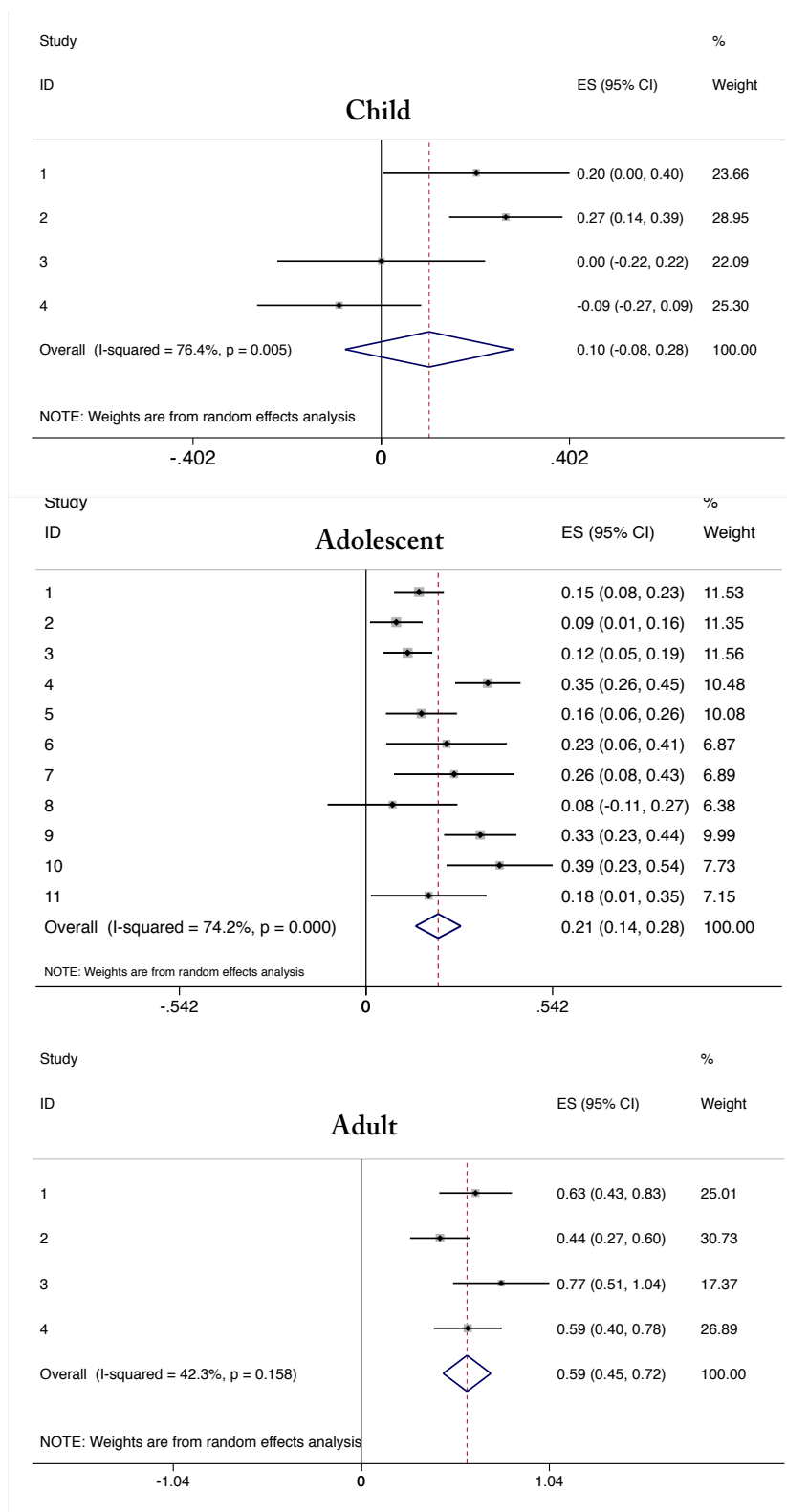


Figure 2.2: Forest plots showing the cross sectional association between fat talking and body dissatisfaction in children (top), adolescents (middle), and adults (bottom).

Publication bias

Due to the small numbers of studies for child and adult groups ($ns = 4$), it was difficult to assess publication bias in these populations. Funnel plots for these groups are shown in Figure 2.3 (top panel and bottom panel). With only four estimates on each plot, it was not possible to meaningfully assess the symmetry. Statistical tests of asymmetry for both the child group (Egger test: $p = 0.35$, Begg test: $p = 0.50$) and the adult group (Egger test: $p = 0.25$, Begg test: $p = 0.64$) were not significant, although this was expected given the low power of these tests with fewer than ten studies (Sterne & Egger, 2005).

In contrast, the assessment of publication bias was more feasible in the adolescent group, where there were eleven estimates of the effect. Visual inspection of the funnel plot for adolescents, shown in Figure 2.3 (middle panel), gave some indication of potential publication bias. Three of the smaller studies had large effect sizes (points in the bottom right hand corner) that were not matched by smaller studies showing small effect sizes (fewer points in the bottom left hand corner). This may be an indication of the small-study effect. However, neither statistical test of asymmetry was significant (Egger test: $p = 0.25$, Begg test: $p = 0.64$), suggesting that publication bias was unlikely.

Sensitivity analyses

Variation in risk of bias within studies was outlined in Table 2.2 (p. 64). There was no variation in risk of bias in the studies in the child group. Therefore no sensitivity analyses were conducted. For the adolescent group, there was variability in studies' use of validated measures of body dissatisfaction. Three estimates were based on unvalidated measures. The random effects meta-analysis for adolescents was re-run excluding these estimates. Results were similar to those reported in the main analysis, with an overall significant association between fat talking and body dissatisfaction ($r = 0.19$, 95% CI = 0.12 - 0.26). For the adult group there was variation in the use of validated measure of fat talking. However, only one of the four studies used a validated measure. As such, it was not possible to re-run the meta-analysis using this study alone.

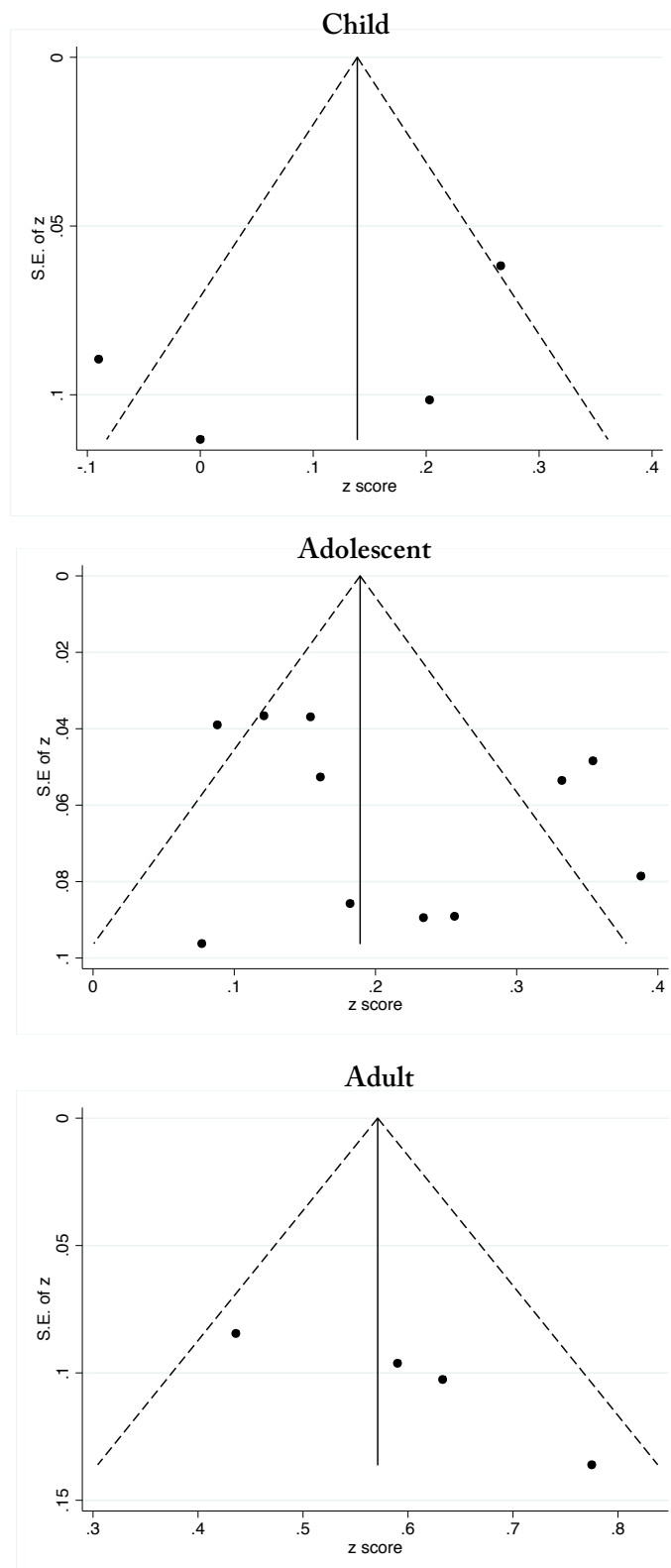


Figure 2.3: Funnel plots with pseudo 95% confidence interval lines, for children (top), adolescents (middle) and adults (bottom).

Criterion 2: Temporal precedence

Results from the four prospective studies are shown in Table 2.6 (p. 73). As with cross sectional studies, if possible, results are reported separately by gender. As such there were five values of r . Since there were few studies, it was not possible to conduct the planned meta-regressions. The follow up lengths in the longitudinal studies varied greatly: two studies considered short-term change (≤ 3 weeks) and two studies considered long-term change (1 year). Because the change over time depends on the amount of time between baseline and follow up measurements, and this change is not likely to follow a linear pattern, two meta-analyses were conducted, looking separately at the studies that measured short-term change and long-term change.

In both cases, no heterogeneity between studies was found ($I^2 = 0\%$) and so fixed-effects meta-analyses were used. Results are shown in Figure 2.4 (p. 74). For short-term studies, there was no evidence of a significant prospective association between fat talking and body dissatisfaction ($r = -0.04$, 95% CI = $-0.19 - 0.12$). For long-term studies, however, there was a significant association between fat talking and increased body dissatisfaction one year later ($r = 0.14$, 95% CI = $0.05 - 0.24$). The effect size for the prospective association in long-term studies was small.

Publication bias

The small numbers of studies made it difficult to assess publication bias in the prospective studies. With so few points, the funnel plots, shown in Figure 2.5 (p. 75), cannot provide meaningful information about potential publication bias. Both statistical tests of asymmetry were not significant (*Short-term*:¹² Begg test: $p = 1.00$; *Long-term*: Egger's test: $p = 0.79$, Begg test: $p = 1.00$), although this was to be expected given the low power of these tests with fewer than ten studies.

Sensitivity analyses

As there were so few estimates available for the prospective analysis, it was not possible to perform any sensitivity analyses based on risk of bias in these studies.

¹² Egger test is not shown for short-term studies, as it is not possible to compute this statistic for a sample of two studies.

Table 2.6: *Prospective data assessing the association between fat talking and change in body dissatisfaction.*

Study	Age	Culture	Gender	Fat talk measure	Body dissatisfaction measure	Follow up (weeks)	<i>n</i>	<i>r</i>	95% CI	
Arroyo and Harwood (2012) – Study 1	Adult	Western	Mixed	18 items	Body Esteem Scale	3	57	.110	-.360	.155
Arroyo and Harwood (2012) – Study 2	Adult	Western	Mixed	6 items	Body Esteem Scale	2	111	.044	-.144	.228
Clark and Tiggemann (2008)	Child	Western	Female	ACWFS	Body Esteem Scale	52	150	.120	-.041	2.75
Jones (2004)	Adolescent	Western	Female	ACWFS	EDI – Body Dissatisfaction	52	164	.160	.007	.305
			Male	ACWFS	EDI – Body Dissatisfaction	52	139	.150	-.017	.309

Note: ACWFS = Appearance Conversations with Friends Scale, EDI = Eating Disorder Inventory, 95% CI = 95% confidence interval

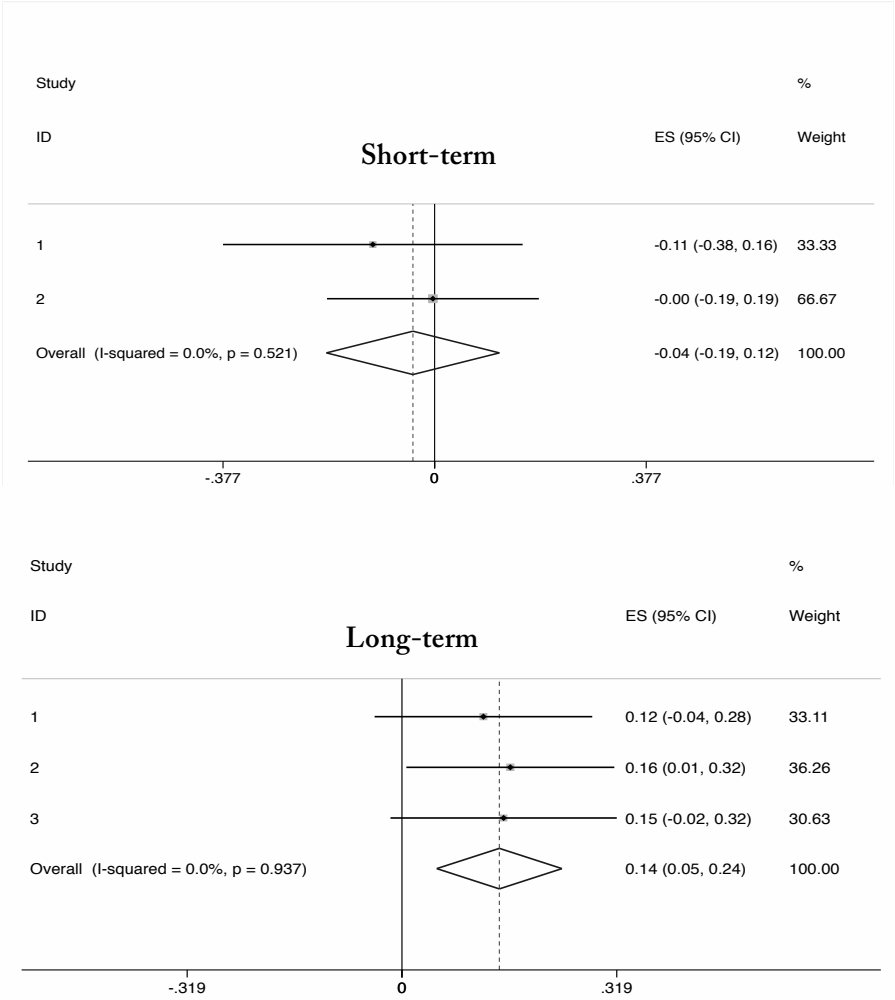


Figure 2.4: Forest plots showing the prospective association between fat talking and body dissatisfaction in short-term studies (top) and long-term studies (bottom).

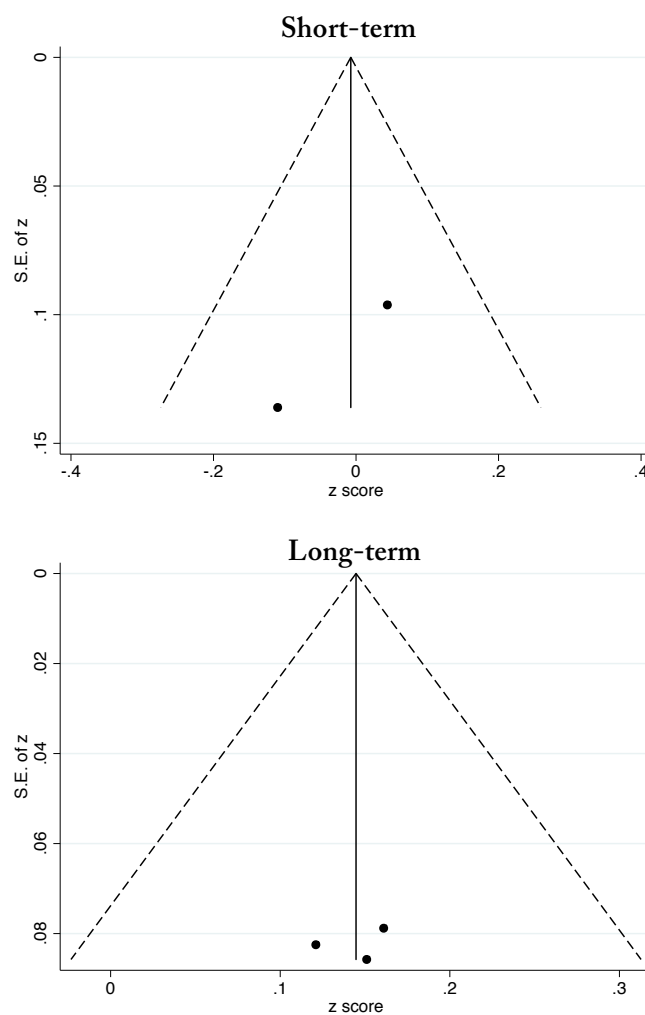


Figure 2.5: Funnel plots with pseudo 95% confidence interval lines, for short-term studies (top) and long-term studies (bottom).

Criterion 3: Experimental manipulation

There was a single study located which assessed the effect of being exposed to fat talking on body dissatisfaction. Results are shown in Table 2.7 (p. 77). The study assessed adult, female participants before and after witnessing confederates fat talking during a sham task. There were immediate increases in body dissatisfaction following exposure to fat talking. The value of the standardised mean difference was small.¹³

Given that only a single experimental study was located, it was not possible to conduct planned meta-regressions, to assess publication bias, or to conduct sensitivity analyses.

¹³ Based on the effect size being equivalent to Hedges g , converted to Cohen's d (Hedges, Olkin, Statistiker, Olkin, & Olkin, 1985) and interpreted based on the guidelines provided in (Cohen, 1988).

Table 2.7: *Experimental studies assessing the association between exposure to fat talking and change in body dissatisfaction*

Study	Age	Culture	Gender	Experimental design	Outcome measure	<i>n</i>	Results	<i>d</i>
Stice, Maxfield, and Wells (2003)	Adult	Western	Female	Participant watched neutral video clip and then was exposed to one condition of: (1) fat talk from confederate ('fat talk') (2) discussion of weekend plans from confederate ('control')	Satisfaction and Dissatisfaction with Body Parts Scale	Fat talk group: 60 Control group: 60	Fat talk group: $M_{pre}(SD_{pre}) = 29.37 (7.91)$ $M_{post}(SD_{post}) = 30.11 (8.20)$ Control group: $M_{pre}(SD_{pre}) = 28.10 (7.93)$ $M_{post}(SD_{post}) = 27.85 (8.54)$	0.12

Discussion

This systematic review aimed to determine whether fat talking is a causal risk factor for body dissatisfaction. Causal risk factors should fulfil three criteria (Kraemer et al., 1997): (1) the factor should be associated with the outcome in cross sectional studies; (2) changes in the factor should precede changes in the outcome in prospective studies; and (3) random manipulation of the factor should affect the outcome in experimental studies. Following this logic, the systematic review included cross sectional, prospective and experimental studies that focused on the association between fat talking and body dissatisfaction. The review also took developmental and contextual features of risk factors into consideration, for example, that the salience of causal risk factors may fluctuate across age. To do this, meta-regressions were conducted to assess whether age, gender, or cultural background were effect modifiers of this relationship.

Overview of the results

Drawing together the findings of this review, there is good reason to consider that fat talking is a causal risk factor for body dissatisfaction. Statistically significant effects, ranging in size from small to large, were found for each of three criteria. That said, in most areas, there were limited numbers of studies available, meaning that further research would be valuable to confirm these preliminary findings.

Criterion 1: Cross sectional association

There was strong evidence in favour of the first criterion from studies with cross sectional data. Meta-analyses revealed a significant positive relationship between fat talking and body dissatisfaction in both adolescents and adults. The effect size of the association was small for adolescents and large for adults (Rosenthal, 1991). No relationship was found in child-aged samples, suggesting that fat talking may not be a correlate of body dissatisfaction in younger children. One reason may be that very few young children report having these sorts of interactions with their friends (5-7% in those aged 5-8 years, Dohnt & Tiggemann, 2006a), suggesting that fat talking is a less dominant of feature of young children's friendships.

Criterion 2: Temporal precedence

There was some evidence from prospective studies in favour of the criterion that changes in fat talking precede changes in body dissatisfaction. Although no significant association was found in studies with short-term follow ups (≤ 3 weeks), there was a significant association in studies with long-term follow ups: baseline levels of fat talking were associated with body dissatisfaction one year later having controlled for initial levels of body dissatisfaction. The effect size for this association was small.

The differences between the long-term and short-term studies may show that the effect of fat talking on body dissatisfaction is that of a ‘slow burn’, taking some time to set in. However, given the findings of the experimental studies (discussed in more detail below), that even a single exposure to fat talking can have immediate effects on body dissatisfaction, another explanation is more likely. It may be of note that the two short-term studies used unvalidated measures of fat talking and so it is possible that these measures lacked construct validity. Given the limited numbers of studies available it was not possible to explore this hypothesis using sensitivity analyses.

A limitation on the conclusions we can draw regarding the second criterion comes from the fact that there were very few prospective studies. As such, the findings may still provide a relatively imprecise estimate of the true effect sizes. In addition, it was not possible to conduct meta-regression and so we cannot conclude anything regarding potential moderators of these relationships. The two long-term prospective studies were conducted within child and adolescent populations from western cultural backgrounds. Therefore, the results of this finding are not generalizable to older groups or to those from more diverse backgrounds.

Criterion 3: Experimental manipulation

Finally, there was some preliminary evidence in favour of the final criterion from an experimental study. Only one study was located but this showed a significant, small-sized effect of being exposed to fat talking leading to increases in body dissatisfaction. That said, the lack of follow up period on this study means that we cannot say whether effects of fat talking on body dissatisfaction would be maintained in a way that is clinically meaningful. Also, given the necessarily contrived nature of the experimental paradigm, further work would be valuable in determining whether these effects are

observed in intact friendship groups where experiences of fat talking may have become normalised. It is feasible that fat talking from close friends would have a different effect than that from a previously unknown peer. Similarly fat talking interactions within certain friendship groups are unlikely to be limited to a single instance, but rather be experienced repeatedly over a long period.

Data from existing and future prevention programmes targeting fat talking (e.g. Richardson & Paxton, 2010; Stice, Chase, et al., 2001) could add weight to the finding that fat talking is causally associated with body dissatisfaction. Assuming that the interventions are successful in inducing changes in fat talking, prospective data from these studies could demonstrate that randomly manipulated decreases in fat talking are associated with later decreases in body dissatisfaction. These studies would help to overcome the problem of ecological validity faced by existing experimental paradigms.

Limitations of the review methodology

There are several limitations of the way in which this review has been conducted that may have introduced bias into the results and limit the strength of the conclusions that can be drawn.

Lack of unpublished work

First, the results are based solely on published studies, which may mean that some available data are not included. As unpublished studies tend to have smaller effect sizes, excluding this work may have resulted in an over-estimate of the true effects. Tests of publication bias were non-significant, suggesting that it is unlikely that inclusion of unpublished work would change the overall findings. However, these are known to have low power when there are fewer than ten studies. Updating this review to include any unpublished work would be a valuable next step.

Lack of double data extraction

Second, a single researcher conducted all of the study selection and data extraction for this review (HS). Compared with using two independent researchers, this method raises the possibility of systematic biases in study selection and of an increased number of errors in data extraction (Buscemi, Hartling, Vandermeer, Tjosvold, & Klassen, 2006).

Coarse categorisation of effect modifiers

Third, the results of the meta-regressions are limited in that rather blunt measures of cultural background and age groups were used. For pragmatic reasons, the cultural background measure was based solely on geographical location of the study participants. In future it may be possible to devise more fine-grained approaches to assessing whether cultural background is of consequence for the relationship between fat talking and body dissatisfaction, such as relying on reports of participant ethnicity, or through studies directly addressing potential moderating effects of cultural background. Similarly the age categorisation was essentially arbitrary and may have obstructed more subtle developmental trajectories in the risk factor status of fat talking.

Limits on the conclusions

It is worth considering that some of the null results reported may be due to the limited number of studies located in certain areas. For example, the meta-regression of the cross sectional data found no effect modification of gender or cultural background. However, there were relatively few studies assessing fat talking in males or in non-Western cultures, and so these null results may reflect a lack of power to detect differences. There was little variation in cultural backgrounds across participants in that both the studies defined as non-Western were conducted in China. No studies provided data reflecting individuals elsewhere in the world, such as those in the Middle East or in Africa. Given this, it would be worth considering the question of effect modification again when we have access to greater numbers of studies across a wider variety of populations.

Additionally, it was necessary for us to assume that the range of scales used to assess fat talking and body dissatisfaction were conceptually equivalent. That is, that it was meaningful to combine effects derived from, for example, the *Body Esteem Scale* and the *Contour Figure Rating Scale*. Although related, these measures are tapping into subtly different understandings of the concept of body dissatisfaction (e.g. affective responses to your body versus figure size discrepancy). With greater numbers of studies, sensitivity analyses would be able to untangle whether effect size estimates varied across the different measures used.

The conclusions of the review are also limited in that we chose only to assess the direct relationship between fat talking and body dissatisfaction. This means that we cannot

conclude that fat talking has a unique contribution to body dissatisfaction above and beyond other sociocultural factors. Guidelines have been developed to help researchers to explore how risk factors work in combination with each other, for example, being independent, overlapping or proxy risk factors (Kraemer, Stice, Kazdin, Offord, & Kupfer, 2001). From a theoretical perspective, it is very likely that fat talking is not independent of other peer-related risk factors. Once greater numbers of studies have been completed, an examination of the nature of these interactions would be of interest, and may have implications for the use of these findings in prevention programmes.

Implications for prevention research

Overall, this review demonstrates that there is positive, but tentative, support for the view that fat talking is a causal risk factor for body dissatisfaction. There is plenty of evidence that, in those aged over 11 years, fat talking is associated with body dissatisfaction at a single time. There is also some evidence that fat talking prospectively predicts increases in body dissatisfaction and that exposure to fat talking causes an increase in body dissatisfaction. A greater number of prospective and experimental studies would be helpful in building support for these initial findings.

These results from this review imply that fat talking is a valuable avenue to explore in terms of prevention efforts, particularly in prevention programmes working with adolescents and with adults. Based on this review, there is now a sound evidence base on which to hypothesize that reducing fat talking with peers should lead to a decrease in body dissatisfaction with the potential for a downstream effect on eating disorder incidence.

**Chapter 3: What Are Adolescents' Experiences of Body
Dissatisfaction And Dieting, And What Do They Recommend
for Prevention? A Qualitative Study**

Introduction

Body dissatisfaction and dieting are common among adolescent girls; nearly a quarter of adolescent girls report being “dissatisfied” or “extremely dissatisfied” with their body (Stice & Whitenton, 2002), and around half have been on a diet in order to lose weight at some point over the last year (Neumark-Sztainer, Wall, Larson, Eisenberg, & Loth, 2011). Given the commonality of dieting and body dissatisfaction during adolescence these experiences could be assumed to be essentially benign. However, multiple studies have established self-reported dieting and body dissatisfaction as risk factors for developing eating disorders (Ghaderi & Scott, 2001; Killen et al., 1996; Patton, Johnson-Sabine, Wood, Mann, & Wakeling, 1990; Patton, Selzer, Coffey, Carlin, & Wolfe, 1999; Stice, Marti, & Durant, 2011; Stice, Marti, Rohde, et al., 2011).

Despite the recognised importance of body dissatisfaction and self-reported dieting in the aetiology of eating disorders, few qualitative studies have explored young people’s experiences of these phenomena. The exploratory capacity of qualitative investigations may provide indications of important factors not included in existing quantitative measures, and therefore may shed light on some of the unexplained variance that remains in studies of the aetiology of body dissatisfaction and eating disorders. In addition, knowledge of lay understandings of aetiological factors can help to make interventions that are acceptable in that they *make sense* to participants. As such, those developing preventative interventions for eating disorders may gain valuable insight from understanding what young people view as the pathways into body dissatisfaction and dieting.

Several exceptions to this paucity of research do exist. As outlined in Chapter 2, Nichter (2001) and Nichter and Vuckovic (1994) used qualitative methods to explore the phenomenon of ‘fat talking’, finding these ritualised interactions to be common and to be considered important for peer group acceptance. In addition, interview studies suggest that pressure from the media and fashion industries is central in young people’s understanding of the aetiology of dieting, as is indirect pressure from friends and family (Wertheim et al., 1997). Tiggemann, Gardiner, and Slater (2000) conducted focus groups with over 60 adolescent girls and reported that pressure from the media was the primary explanation for why women wanted to be thinner.

Some qualitative work has also turned to young people for recommendations for prevention of eating problems. Haines et al. (2007), conducted focus groups with school staff, parents and young people prior to development of an intervention for weight-related issues in elementary school. Students recommended: education about teasing, including practical strategies to intervene; focusing on role models of all shapes and sizes; providing sources of support for young people with problems; and developing fun ways to keep active.

Aims

Following on from this existing work, this study had three aims. The first was to use qualitative methods to examine young people's experiences of body dissatisfaction and dieting. Second, the study aimed to explore young people's attribution of causes to body dissatisfaction and dieting. The third aim was to explore young people's recommendations for preventing these problems.

Methods

Participants

Twenty two female students from one selective secondary school in England participated in focus groups. Students were aged between 13 and 15 years and were predominantly from a White British background. This age group was selected because the peak age of onset for eating disorders is late adolescence (Stice, Marti, Shaw, & Jaconis, 2009), and so primary preventative efforts are best instigated prior to this point.

Procedure

Ethical approval for this study was granted by King's College London Research Ethics Committee. The confirmation letter for this can be found in the Appendix A.1. The study methodology was informed by recommendations for good practice in qualitative research (Stiles, 1999). Having previously expressed an interest in being involved in research, the school was approached about this study. Information about the study was presented to the head teacher and written permission was gained. Twenty-three student participants were selected by teachers as being suitable to participate in a focus group about body image. Criteria for inclusion were sufficient English language ability and willingness to discuss the topic. Fully informed opt-in consent was gained from

students' parents/carers. Before starting the focus group the nature of the study was outlined by the researchers and students provided written assent confirming that they were happy to participate. One student was absent from school on the day of the focus groups and so was not included in the study.

Twenty-two participants took part in four focus groups, with between four and seven students in each group. Each group comprised of students from the same year group. Focus groups lasted approximately one hour and took place in a room in the participants' school. The discussion was steered by the topic guide, provided in the Appendix B, which focused on: body image and appearances; dieting and weight control; and student recommendations for helpful interventions. Focus groups were audio recorded and later transcribed with any personally identifying information (e.g. names) removed.

Analysis

Transcripts of the focus groups were investigated using a thematic analysis (Braun & Clarke, 2006). A data-driven, inductive approach was adopted; we did not draw themes from existing theoretical frameworks but rather explored themes that arose directly from the discussions.

Following Braun & Clarke (2006), the analysis progressed in six stages. First, becoming familiarised with the data through transcription, reading and re-reading. Second, taking the whole data set and coding interesting features. Third, collating these initial codes into themes. Forth, reviewing these themes against the coded extracts and the data set as a whole. Fifth, refining the themes, creating a clear definition and name. Finally, producing written summaries by picking out examples to elucidate each theme.

Results

Results are presented in three sections. First, I report on participants' experiences of the importance of appearances and dieting in school. Second, I present participants' thoughts on why young people might experience body dissatisfaction and choose to try dieting. And third, I report on participants' recommendations for preventing problems with body dissatisfaction and eating in schools.

The importance of appearances and dieting in school

There were mixed responses from students regarding how important they thought appearances were for them and for others in the school.

"I think image is really important and that everyone has to try and make an effort in how they show themselves." – Student 8, Aged 15

"I don't really put that much effort into the way I really look when I come to school because I don't really care because it's not something that's important." – Student 4, Aged 13

However, dieting was viewed as being a very common activity, something that everyone did at least occasionally.

"We're all trying to be a bit more careful for the summer. And lose a bit of weight we gained over Christmas." – Student 7, Aged 15

"I see girls checking the calories on food [...] And I've seen girls actually picking up muffins, seeing it and then just putting it back down." – Student 22, Aged 15

Fat talking

Further discussion around the number of students who were actively dieting revealed a perception that individuals who made a point of saying they were on a diet were unlikely to actually be so, whereas those who said nothing may actually be engaging in more serious weight loss efforts.

"People just say 'oh yeah, I'm on a diet' when they're not really." – Student 3, Aged 14

"I think the people who really are on diets are the ones who don't actually say anything about it. And those are the ones where you can kind of tell because it's like a hidden." – Student 22, Aged 15

That said, there was recognition that the discussion of dieting alone was indicative of an underlying focus on weight, shape and eating. Students were aware that this 'fat talking' may also be harmful for those around them.

"They say something like 'I'm so fat, I need to get on a diet!' or something like that, and then people who are actually like more overweight might think like 'oh they're

saying that and they're skinnier than me, which means that I'm even worse than them'. – Student 13, Aged 13

Reasons for body dissatisfaction and dieting in young people

Students discussed reasons why young people may feel dissatisfied with their appearance or may choose to start dieting. Four themes of possible 'causes' emerged:

- Peer acceptance
- Social comparisons with peers online
- Pressure from family
- Pressure from the media and fashion industries

Peer acceptance

Students were acutely aware of being judged by peers based on their appearance.

"Because you get judged. Like everybody judges you, wherever you walk really [...] I think just looking attractive so that people don't talk about you and say like, 'Oh she's fat, she's ugly, her hair looks ridiculous'." – Student 17, Aged 14.

As students got older, this pressure from peers also revolved around having a boyfriend; being slim was viewed as an essential feature of being attractive.

"A lot more pressure comes on to look like the girls who you see always getting with the guys. A lot more pressure. And they're also the thin ones so..." – Student 9, Aged 15

That said, students were keen to point out that in many instances close friends were a source of positive feedback, often trying to counter unhelpful pressures from elsewhere.

"If one person says 'I feel like I need to eat less' or something their friends sometimes actually say 'no you shouldn't, you should eat what you're eating' rather than saying, like rather than just going along with it." – Student 4, Aged 13

Social comparisons with peers online

Social networking sites, such as Facebook, played an important role in young people's experiences of pressure to look good. Students posted photographs from holidays online with the understanding that other girls would be going through the albums assessing

how attractive they looked. Students noted how their growing use of online social networks had greatly expanded the size of their immediate peer group.

“Facebook gives you the opportunity to look at whoever you want whenever you want, and go ‘Oh I’m going to look at that picture of her in a bikini because I think she looks skinny’ but it’s sort of made the whole appearance thing a lot more noticeable.” – Student 16, Aged 13

Students were aware that these online interactions, centring on viewing and commenting on photos, generally left them feeling dissatisfied with their own appearance.

“I always just look at people’s photos and think ‘Oh my God they’re just so pretty’ [...] I just remember last summer being on Facebook and just looking at people and when they come back from holiday and they upload their photos and they look so skinny in a bikini. And I’m just there with my paleness and just my kind of average figure.” – Student 9, Aged 15

Pressure from family

Several groups commented on the importance of pressure arising from other members of the family. Often this pressure was seen as being more influential than that of friends.

“We’ve got a friend who’s going a low carb diet at the moment because her family are, like her family’s doing it, so it’s easier if her and her sisters go along.” – Student 3, Aged 14

Students also pointed out that pressure from family could be either direct, as in the form of dictating a diet, or indirect, such as modelling eating habits and self confidence on that of parents.

“So if you see your parents going on Atkins Diet or something then you’re going to be thinking ‘oh should I be having carbs? Like is it not good to have carbs?’ So then you just think it’s normal to just cut things out of your diet.” – Student 16, Aged 13

Pressure from the media and fashion industries

Students were very aware of images in the media setting a high standard for appearances. One student had worked with aspiring models and found the experience made her much more conscious of the way she looked and what she ate.

“When you're looking through something like Vogue or something, and you see all these girls with like their perfect faces and like clothes and you're just like 'I want to look like that'.” – Student 18, Aged 15

To some extent all students were aware of the perfecting techniques (e.g. digital enhancement) used in media images, but this knowledge did not make them immune to negative effects of viewing these sorts of images.

“And also like media as well. Because if you see photo shoots that have basically been airbrushed but you don't think about that aspect of it you just think that people look that good.” – Student 16, Aged 13

Recommendations for prevention and early intervention of body dissatisfaction and dieting

Students explored what would be helpful for individuals who were having difficulties with body dissatisfaction or dieting. Although the topic guide did not specifically ask about intervention for individuals with eating disorders (the focus was on body confidence and dieting), participants also discussed what may be helpful in these cases and so these findings are also included in this section. There were seven areas of recommendation.

- Building sources of support
- Learning to be more critical of the media
- Monitoring the school gym
- Working with parents
- Working with people who have suffered from eating disorders
- Educating about signs and symptoms of eating disorders
- Help from professionals

Building sources of support

Students were clear that one of the most important things that could be done to help with problems of body dissatisfaction and dieting would be to have people there to talk to about them. Various tensions were expressed about who would be best to provide this support.

Teachers

Teachers were viewed as potentially a very valuable source of support but there were several concerns that were raised. Students were concerned that any problems discussed with teachers would be blown out of proportion and were not confident that teachers would be honest with them.

"I also think teachers are always like 'oh I think you should tell your parents about this' and no one actually wants to tell their parents." – Student 13, Aged 13

"If you go to a teacher, they're going to give you the 'well it's wrong and you know what can happen'. Like the 'talk' kind of thing. It feels like a scene they've been given to say to you." – Student 15, Aged 13

Friends and family

Many students thought that they would only feel comfortable speaking to someone with whom they were well acquainted.

"I'd prefer to go to someone who knows me really well like a friend or a family member. Rather than someone like a school teacher I'd spoken to like once." – Student 3, Aged 14

However, although friends were seen as the ideal option for discussing problems – being honest and trustworthy – some students thought that having friends whom you trusted enough to be completely honest with was actually quite rare, and that sometimes it was very difficult to support friends through problems.

"Very few people have friends who they're honestly close enough to bring up this kind of thing with." – Student 16, Aged 13

“ I think it's hard for friends to support other friends sometimes because you don't know exactly how they're feeling [...] and so sometimes they like tell you a problem and you don't really know like what to say.” – Student 10, Aged 14

Anonymous forms of support

In contrast to the personal support sought from teachers, friends and family, some students found benefits in anonymous forms of support, such as websites, radio stations and email support. The main advantage was that issues could be raised in a safe atmosphere.

“I think that's a really good idea [a radio show]. Because for some reason people you aren't close to you are so much easier to talk to about embarrassing problems so anything like that. It's just like, because you always think that it's not going to come up again and it's not going to be like in your life.” – Student 13, Aged 13

Learning to be more critical of the media

Learning to manage the media was raised as an important source of prevention. Students in the school had received several lessons on media literacy. One group discussed a particular lesson focusing on ‘photoshopping’, in which girls were taught how to digitally alter images in order to demonstrate the sorts of techniques that are frequently used. Students found this exercise very engaging and interesting.

“Although we're aware that it happens and stuff, I think now after doing that, like after looking at photoshopping and experiencing it ourselves, I think it's made us a lot more aware and we can look at something and say 'oh look we can see they've photoshopped that there’” – Student 17, Aged 14

“As opposed to just being given the information about it, we actually got to explore it ourselves. It was actually like an independent thing and we could just look at it with your friends and be like 'Wow, she didn't look like that before!’” – Student 15, Aged 13

Monitoring of the school gym

One group raised the school gym as a possible site of intervention. A student recommended that it would be beneficial if staff were to pay closer attention to use of the gym and to be aware that over-use of the gym could be a problem.

"I think they should also like monitor the school gym. Like who's in there. Say like don't go in there for every single lunch for every hour. Like they should actually find out who's going in there and what they're doing in there." – Student 20, Aged 15

Working with parents

In addition to recommendations focusing on the school setting, several students mentioned that it may be helpful to also work with parents at home. Students thought that an intervention for parents may be helpful but were unsure about how best to involve parents.

"Your parents don't get taught how to be parents, which I find crazy because I would never know what to say to a child if they were having trouble. So I think, I know you can't give parents lessons and stuff. But I think maybe if we started giving lessons and advice to this generation when they become parents they might be able to talk to their children better." – Student 15, Aged 13

Education about signs and symptoms of eating disorders

In addition to discussing body dissatisfaction and dieting, each group mentioned ways to help students with eating disorders. Students suggested that education about the signs, symptoms and risks of eating disorders would be helpful, for both staff and students.

"But if they're not educated on like this whole eating kind of thing they're not going to notice that kind of thing. And I don't think it's just the teachers. I think it's the students. I think everyone just needs to be educated a bit better about the facts." – Student 18, Aged 15

Some students had received lessons about the signs and symptoms about eating disorders and agreed that they were very useful. However, other students were dissatisfied with the amount of information given and the perception that teachers were unwilling to engage with the topic fully.

"They're always worried about upsetting us but they just need to say it because it, otherwise no one's going to know and it's not like it's something we don't need to know about because it does happen. [...] Sometimes when people ask questions in lessons teachers say 'I'm not allowed to tell you that.'" – Student 21, Aged 15

Working with people who have suffered from eating disorders

Students agreed that it was important that lessons about eating disorders were made relevant for them, but were torn as to how best to achieve this aim. Several students suggested that meeting a person with an eating disorder would be helpful.

"I think something that would like shock people into thinking this isn't where you want to end up. If we did like some presentation on someone who like spoke to us and had been through anorexia and had come through it then I think that would be so much more meaningful." – Student 3, Aged 14

In contrast to this, some students suggested that it would actually be more difficult to relate to someone who was or had been unwell with an eating disorder. For these students the practice of taking an extreme case was alienating and they thought it would speak little to the widespread but lower level body dissatisfaction and dieting that they experienced on a daily basis.

"When we're taught about anorexia and like eating disorders like being obese and stuff it's either one extreme or the other. They don't show us like a, like this could happen, or this is how you get out of it. It's like, 'this is really bad anorexia' and it's like bones or something, and this is obese but it's like ridiculous. There's no line between it." – Student 17, Aged 14

"Everyone just thinks 'well that's clearly not going to happen to me. If I just do it slightly then that's never going to happen.'" – Student 13, Aged 13

Help from professionals

Following on from students' concerns about the amount of knowledge that teachers had about eating disorders, it was recommended that students had access to a professional from the field of eating disorders.

“And if there was a professional, say if you were like, I don't know, some anorexia specialist person, they would then know, they would be able to help, and the school teachers wouldn't know... Your friends wouldn't know.” – Student 18, Aged 15

In addition, for girls with more serious problems, working with a specialist was seen as the only route:

“Just notice it and let her... Just to talk to her. Not somebody who's going to judge her. Not a friend and not a parent or anything. Like a proper counsellor or something. I think that's the only thing that could help her.” – Student 22, Aged 15

Discussion

This study had three aims: To investigate young people's experiences of body dissatisfaction and dieting; to explore what young people thought about body dissatisfaction and the drive to diet; and to gain recommendations from young people for preventing body dissatisfaction and dieting during adolescence.

Students were in agreement that, although appearances were not equally important for everyone, dieting was something that ‘everyone did’, at least occasionally. Students acknowledged, however, that saying you were on a diet did not necessarily equate with restricting food intake in order to lose weight. There were many possible reasons suggested for the perceived focus on weight, shape and eating in school. Sociocultural factors – the media, peers and families – were overwhelmingly viewed as important forces in young people's body confidence. Looking good, which invariably involved being slim, was essential because others were thought to be making judgements based on appearances. Despite peers being viewed as a major source of pressure to be slim, close friends were sometimes sources of counter pressure, standing in opposition to diets.

These findings are largely in line with previous research. Previous focus groups have also shown that adolescents view the media as a central factor in the drive to be thin (Tiggemann et al., 2000). In addition, as discussed in greater detail in Chapter 4, empirical work has frequently confirmed the link between perceived pressure to be thin and body dissatisfaction and eating pathology (McCabe & Ricciardelli, 2005; Stice &

Whitenton, 2002). The recognition that saying you are dieting is very different from actually dieting complements Nichter's (2001) discussion of 'fat talking', in which ritualised interactions between friends focussing on weight and shape are used as a means of expressing emotions and building group solidarity. In this sense, the 'language of fat and dieting' ceases to be about eating and so is detached from the act of dieting. The recognition that fat talking may be unhelpful for those around you sits well with the findings from Chapter 2, in which fat talking was found to be causally associated with body dissatisfaction. In contrast to these negative peer influences, several participants reported trying to convince friends to stop dieting. Friends being a source of anti-dieting advice was also a key finding by Wertheim et al. (1997). These results are of importance because they remind us that peer influences on eating and body satisfaction can be positive.

One novel finding of this study was the growing importance of peer-related factors due to online social networks. All groups discussed the use of websites such as Facebook for viewing and commenting on photographs. The use of online social networks meant that social interactions were extended beyond those with whom you had immediate contact and appearance-based comparisons took on a new overt and quantifiable nature (such as the number of 'likes' for a photograph). Recent reports suggest that online video sharing websites, such as YouTube, are also becoming sites of appearance comparisons and fat talking, with young adolescents posting videos of themselves asking for feedback on 'Am I Ugly?' (Baker, 2012).

At this point we know relatively little about whether online peer influences differ markedly from face-to-face interactions. There is some experimental evidence that viewing online profiles of attractive people leaves women feeling less positive and more dissatisfied with their appearances (Haferkamp & Krämer, 2011). These findings are yet to be replicated in adolescent samples. Work outside the realm of body dissatisfaction shows that interactions on social networks are predicted by those offline, in that those adolescents who have warm peer interactions offline are more likely to have positive interactions online as well (Mikami, Szwedo, Allen, Evans, & Hare, 2010). Given the importance placed on online interactions by students in this study, it would be interesting to investigate this question with a specific focus on body dissatisfaction in future work.

The third aim of this study was to explore young people's recommendations for preventing body dissatisfaction and dieting. One of the clear messages to emerge was that putting in place sources of support where students could raise problems in confidence was essential. For some students this support existed in school but for many staff were viewed as poorly equipped to help with difficulties and likely to betray trust by informing parents against a student's wishes. Staff training regarding eating disorders and body dissatisfaction was warmly welcomed. These findings are in line with studies with school staff that show that staff have limited knowledge about eating disorders and would value training in this area (Neumark-Sztainer et al., 1999; Piran, 2004).

Students were also in support of media literacy training and this was aligned with their perception that an important factor in the development of body dissatisfaction and eating pathology was media pressure towards thinness. As discussed in Chapter 1, universal media literacy interventions have shown promise in adolescence (Wilksch & Wade, 2009). Given that students endorse these interventions, it is likely that media literacy components will have high acceptability as well as efficacy.

Three of the others recommendations – working with parents, gaining psycho-education, and have sessions run by patients – have been explored previously in various forms but have been found to face difficulties. As discussed in greater detail in Chapter 1, those working with parents have faced problems with engaging families in eating disorder prevention, meaning that these interventions lack feasibility (Haines, Neumark-Sztainer, Perry, et al., 2006; Jones et al., 2012; Varnado-Sullivan et al., 2001). Increased psycho-education about eating disorders, either through lessons or through speaking with patients, has not been found to be efficacious in reducing risk factors for eating disorders (Mann et al., 1997; Stice, Shaw, et al., 2007). As such, although these approaches would be acceptable to students, they are unlikely to be helpful for the purposes of universal prevention.¹⁴

¹⁴ It is worth noting that increased psycho-education may have benefits other than prevention, such as increased help-seeking behaviours, and increased staff confidence to manage eating disorders in schools.

Some themes were noticeable in their absence. In particular, tackling bullying/teasing was something that was barely discussed. Only one student mentioned tackling bullying and the comment was about the futility of trying to stop bullying in schools:

“It's really difficult for schools to try and eradicate bullying because there's really nothing much that I think teachers can do.” – Student 16, Aged 13

This finding is in contrast with the work by Haines (2007), who found that students identified several ways that schools could tackle bullying, including education about effects, learning to stand up for others and discipline. However, students in Haines' groups were younger than in this study (grade 4-6) and were also asked specifically about bullying. It is notable that when not prompted, the students in this sample did not identify bullying interventions as a route to prevent problems with body satisfaction.

A strength of this study is that in-depth, qualitative methods were used, in which students explored their ideas and discussed them with peers. The data obtained are rich and provide an insight into the adolescent experience that is not captured by widely used questionnaire measures. In particular, the finding regarding online interactions with peers on social networking websites could not have emerged from existing quantitative measures that do not address these factors.

A weakness of this study is that the focus groups were limited to one school and, given that this was a single-sex school, were conducted with female students only. There is a growing body of work focusing on body dissatisfaction in boys and it would be of interest to explore similarities and differences between the genders in this area. Neither the school nor the students were randomly sampled. Students were selected by school staff as being suitable for participation in focus groups and so we cannot be sure that the views expressed by these students would be representative of the student population as a whole. The school predominantly consisted of girls from White British backgrounds and so we cannot know whether these results are valid for those from other ethnic and cultural backgrounds.

Implications for prevention programmes

There are several implications of this work for the development of prevention programmes. Feeling judged by peers was one of the primary factors young people

raised as underlying any anxieties about weight and shape. This underlines the importance of universal interventions in adolescence as it suggests that choosing to start dieting or developing dissatisfaction with your appearance is a process that takes place within the broader context of those around you. Universal prevention, in which intervention is delivered to all members of the peer group, provides an opportunity to tackle these broader environmental factors and does not simply aim to build resilience in the face of these difficulties. Using school-wide interventions to address broader appearance culture norms in this way has proven to be successful in existing interventions. For example, Piran tackled unhealthy culture towards body weight and shape in a high-risk ballet school setting (Piran, 1999), and McVey and colleagues adopted a whole-school approach involving multiple elements with staff and students to prevent eating disorders in middle school students (McVey et al., 2007).

A second implication is that students need to feel that the intervention is relevant for them. This can be a challenge for universal interventions because the inclusion of all individuals in the peer group introduces a heterogeneity of needs and interests. Students made it clear that having interactive features of lessons was a good route to making the content personally relevant, as students were able to uncover information for themselves. Didactic interventions, such as lectures and videos, have been found to be less effective in reducing risk factors for eating disorders (Stice, Shaw, et al., 2007), confirming the point that having interactive activities is essential.

Third, it will be critical to ensure that adequate staff training is given prior to any intervention in order to boost both staff confidence and student perceptions of staff knowledge. As also discussed in Chapter 1, levels of knowledge and confidence in dealing with problems with eating do vary amongst school staff (Knightsmith, 2010) and many staff welcome more training in this area (Neumark-Sztainer et al., 1999; Piran, 2004). Given the perception that staff are under-informed, giving staff strong guidance in this area may be key for the acceptability of lessons for students.

In terms of the content of interventions, specifically targeting sociocultural pressures, including peer pressures, to be thin seems to be of importance. Peer pressures were particularly pertinent, both in the online environment and in everyday face-to-face interactions. Fat talking with friends, in which young people say they are dieting or

need to diet, was a prominent feature of these students' experiences. Tackling ritualised interactions that reinforce the importance of weight, shape and eating in a friendship group could be central to a successful prevention programme.

Several interventions already include a focus on peer influences on body image, confirming that this may be a fruitful approach to prevention. For example, Richardson and Paxton (2010) report a successful three session prevention programme with a focus on fat talking and peer teasing and ways in which young people can challenge these negative interactions. Wilksch and Wade (2009) conducted a large scale evaluation of *Media Smart*, a media literacy intervention that tackles sociocultural pressures from the media, family and friends, and found that this intervention significantly improved measures of weight concern, dieting, body dissatisfaction, ineffectiveness and depression. In addition, several interventions have directly targeted peer teasing (Haines, Neumark-Sztainer, Perry, et al., 2006; Warschburger, Helfert, & Krentz, 2011) and provided methods for tackling pressure from peers to be thin (McVey, Lieberman, Voorberg, Wardrobe, & Blackmore, 2003; Moreno & Thelen, 1993; Wilksch, Tiggemann, & Wade, 2006).

In summary, this study has provided young people – the main recipients of preventative interventions – with a platform on which to express their views about what would be helpful for them. Incorporating these findings into the development of preventative programmes should help to improve the acceptability of existing and novel interventions.

Chapter 4: Designing A Universal Prevention Programme For Eating Disorders In Secondary Schools

The development of complex interventions

Complex interventions are those with multiple interacting components, which require some skill to deliver, and which may necessitate some tailoring of form or content to the particular context of delivery (Craig et al., 2008). As such, complex interventions may be contrasted with simple interventions, which typically consist of a single element, such as the prescription of a particular drug. The Medical Research Council (MRC) offers guidelines on the development of complex interventions as it is acknowledged that there are unique challenges posed by the design, management and evaluation of these programmes (Craig et al., 2008).

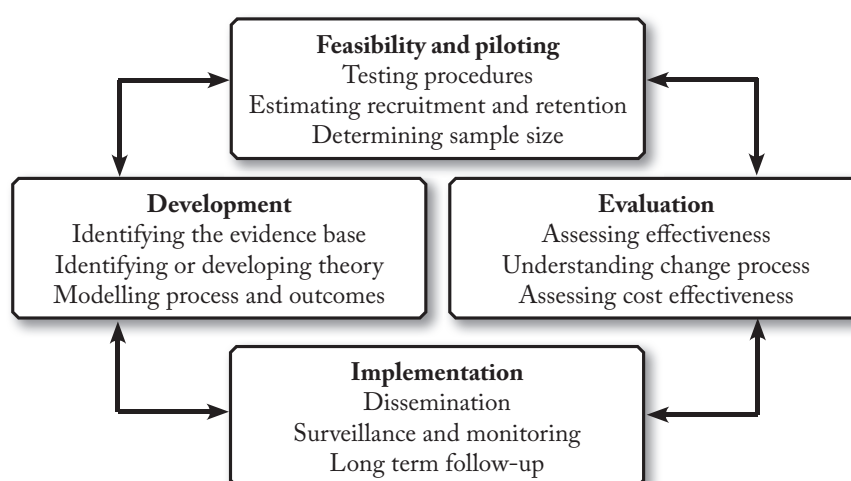


Figure 4.1: Key elements of the development and evaluation process. (Craig et al., 2008)

The original MRC guidelines (Campbell et al., 2000) presented intervention development in four phases: *development*; *feasibility & piloting*; *evaluation*; and *implementation*. Based on medical trial protocols, these phases were assumed to occur in a linear fashion, beginning with development and, once development was completed, assessing feasibility and so forth. In contrast, in the recent update of the MRC guidelines, the development process for complex interventions is presented as a fluid system in which these four phases do not necessarily occur in order, but rather may be developed in parallel (see Figure 4.1, Craig et al., 2008). This shift in approach is significant because it acknowledges that complex interventions are particularly prone to contextual challenges that may render an empirically and theoretically sound

intervention unusable, due to contextual factors specific to the site(s) of delivery. This means that feasibility and piloting considerations may need to go hand in hand with 'pure' intervention development.

This consideration is particularly pertinent within the context of the research-practice gap (Clancy & Cronin, 2005; Morrissey et al., 1997). One 'gap' of importance is that of bringing interventions that have been shown to work in controlled research settings into everyday practice in the community. Very few interventions make this leap, with the majority trialled in academic settings and never further developed or disseminated. A central factor in developing translational interventions is to be conscious of designing programmes that can easily be assimilated into normal practice, through meeting the needs of those in the community (Wandersman et al., 2008). The traditional approach of creating empirically informed interventions that require moulding to real-life delivery speak little to these requirements. In contrast, drawing on information about the contextual features of the sites of delivery during the development phase should help to produce interventions that bridge the research-practice gap more easily.

The development process

In this chapter, I outline the major decisions that were made during the development of the intervention, *Me, You & Us*. First, I discuss the content of the programme, and then I turn to key points regarding the form, such as the age of participants and the nature of teacher training. Throughout this chapter I aim to show how contextual and empirical factors were collectively taken into consideration in order to develop an empirically-based but practically-orientated intervention.

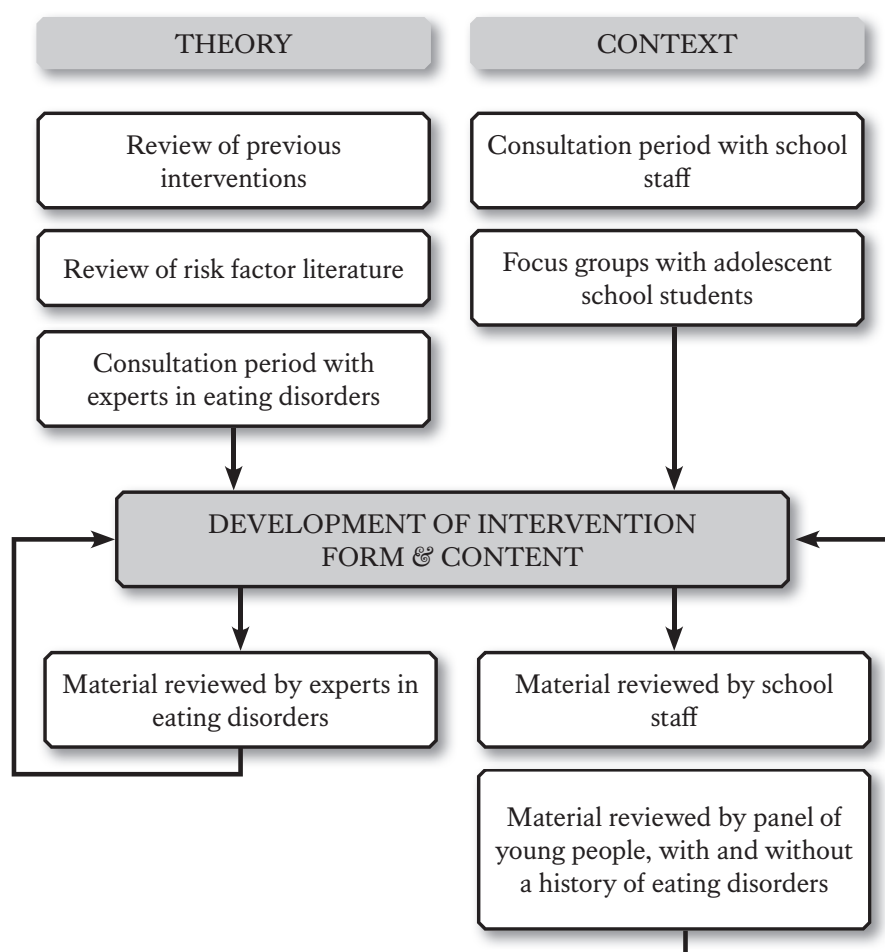


Figure 4.2: Process of intervention development, incorporating theoretical and empirical findings with contextual factors.

Figure 4.2 gives an overview of the decision-making processes during the development period. The theoretical/empirical evidence for the programme was determined by reviewing what has worked in previous interventions, what is known about risk factors for eating disorders, and through consultations with experts in the field of eating disorders. Complementary evidence regarding the specific context of this intervention – UK secondary schools – was gained through a consultation period with school staff, as well as a series of focus groups with secondary school students (reported in Chapter 3). The consultation and development process occurred over a period of six months.

Directly involving school staff in the development of intervention material has been one of the central recommendations for improving fidelity and acceptability of school-based

interventions (Smolak et al., 2001). This mirrors the community-partnership approach adopted in successful eating disorder prevention programmes developed in sororities (Becker, Stice, Shaw, & Woda, 2009). Also, as discussed in Chapter 2, aligning intervention material with lay understandings of the aetiological pathways for eating disorders should boost acceptability of the programme for recipients.

Having gathered this range of evidence, a draft of intervention material was produced. This was then shown to experts in the field of eating disorders and key stakeholders: a school nurse; secondary school teachers who would be involved in the delivery of the material; three secondary school students; and a young person with a history of an eating disorder. Revisions were made based on their comments on this draft and a final version of the intervention material was developed. Copies of the final version of the Facilitator's Guide and Student Workbook can be found in Appendices D & E.

As outlined in Chapter 1 of this thesis, the focus of this work was on a universal intervention delivered within a school setting by usual school teachers. The decisions described in this chapter were made within this framework.

Intervention content

Risk factors for eating disorders

In determining the content of intervention material, we return to the essential point that preventative interventions work through minimising causal risk factors for conditions. To reiterate the definitions outlined in Chapter 2: *variable risk factors* are those that are known to precede the outcome, and *causal risk factors* are those that, when manipulated, alter the likelihood of the outcome (Kraemer et al., 1997). Content, therefore, should be based on the current understanding of causal risk factors for eating disorders. In cases where few causal risk factors are known, variable risk factors provide the next best available candidates for preventative interventions.

When designing interventions for the school setting, we are limited to those causal risk factors that are feasible to manipulate at this developmental point and within the confines of the school environment. With this in mind, the first step in designing the intervention content was to review evidence for potential causal risk factors for eating disorders that could be targeted in classroom-based prevention.

Figure 4.3 shows putative risk factors for eating disorders.¹⁵ Highlighted in bold are those factors for which it was deemed most feasible to conduct classroom-based intervention.

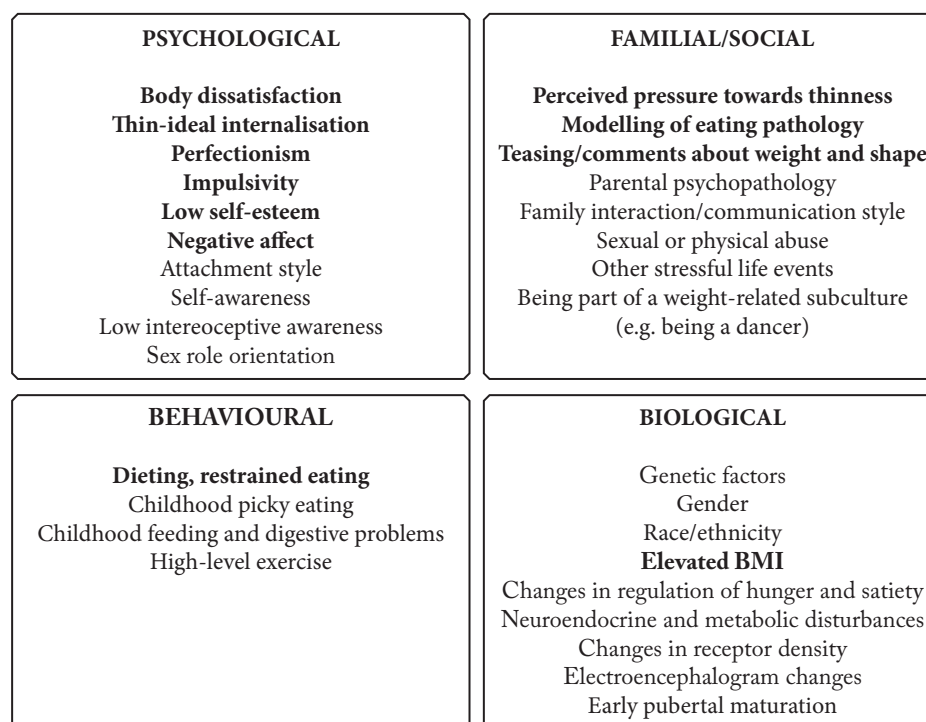


Figure 4.3: Putative risk factors for eating disorders.

It is worth pointing out that these risk factors are not necessarily independent of each other and most likely interact in complex ways. However, for the sake of clarity, and due to a limited understanding of these interactions available from the current literature, here I discuss each factor independently.

The structure of this section is as follows. I review the literature for *psychological factors*, *social factors*, *behavioural factors* and *biological factors*, in turn. Within each part, first I discuss evidence from longitudinal studies to determine whether the factor precedes eating pathology. To do this I draw on existing comprehensive reviews and recent, high-quality studies. I then consider whether each factor has been targeted successfully in preventative interventions or manipulated in laboratory-based experimental studies, suggesting that it is a causal risk factor for eating disorders.

¹⁵ The list is based on those proposed by Jacobi et al. (2004) and Stice (2002).

Psychological factors

Six putative psychological risk factors are promising candidates for classroom-based prevention. I first review evidence for those specifically related to weight, shape and eating, namely: *body dissatisfaction*, and *thin-ideal internalisation*. I then turn to more general psychological factors: *perfectionism*, *impulsivity*, *self-esteem* and *negative affect*.

Body dissatisfaction

Body dissatisfaction is defined as “negative subjective evaluations of one’s physical body, such as figure, weight, stomach and hips” (Stice & Shaw, 2002, p. 985). In addition, the literature focuses on specific aspects of body dissatisfaction, such as weight concerns and shape concerns, and related constructs, such as an over concern with weight and shape. As noted previously, body dissatisfaction has been hypothesised to be a key proximal risk factor for eating disorders in a number of models (e.g. Keery et al., 2004; Stice, 2001). This position is very well supported: in the most comprehensive review of risk factors for eating disorders conducted to date, Jacobi et al. (2004) conclude that: “weight concerns/dieting represents the most frequently assessed, best confirmed, and most potent variable risk factor from longitudinal studies” (p. 50). Effect sizes for the association with eating pathology were medium to large. The review was updated in 2010 with further studies confirming this position (Jacobi & Fittig, 2010). Stice (2002) reports slightly more conservative results, with combined effect sizes from 13 studies being small ($r = 0.14$), but also concludes that body dissatisfaction “emerged as one of the most consistent and robust risk and maintenance factors for eating pathology” (p. 833).

More recent studies have only added strength to the position that body dissatisfaction is a central risk factor for eating disorders. For example, Stice, Marti, and Durant (2011) followed nearly 500 adolescents girls over eight years and body dissatisfaction was the most potent of the risk factors assessed for developing any eating disorder in that time. Those girls in the top quarter for body dissatisfaction had four times the incidence rates of eating disorders compared to their less dissatisfied peers. Similar results have been found across a number of large prospective studies (Beato-Fernández, Rodríguez-Cano, Belmonte-Llario, & Martínez-Delgado, 2004; Ferreiro, Seoane, & Senra, 2011; Neumark-Sztainer, Wall, Haines, Story, Sherwood, et al., 2007; Wichstrøm, 2006).

Turning to whether body dissatisfaction is a causal risk factor for eating pathology, we need evidence from experimental studies that reducing body dissatisfaction reduces the chances of developing an eating disorder. The best available data on this question come from prevention trials that have targeted body dissatisfaction and shown a reduction in eating pathology or onset of new cases of eating disorders. For example, Taylor et al. (2006) demonstrated that *Student Bodies* significantly reduced weight concerns and that for certain groups of participants there were fewer new cases of eating disorders (bulimia nervosa and binge eating disorder) in the intervention group over three years follow up. Other studies have gone further and used mediation analyses to demonstrate that changes in body dissatisfaction, induced by an intervention, mediate changes in bulimic pathology (Bearman, Stice, & Chase, 2003; Stice, Marti, Rohde, et al., 2011). This provides strong evidence that body dissatisfaction has a causal role to play in these conditions.

In summary, there is good support for body dissatisfaction being a causal risk factor for eating disorders, although the focus of research has been on bulimia nervosa and binge eating disorder rather than on anorexia nervosa. The centrality of body dissatisfaction in the aetiology of eating pathology, suggests that it would be helpful to also consider risk factors for body dissatisfaction when designing prevention programmes. Therefore, in what follows I review the status of putative risk factors in terms of their association with both eating pathology and body dissatisfaction. Risk factors may therefore be more proximal – directly associated with eating pathology – or more distal – association with eating pathology due to a link with body dissatisfaction.

Thin-ideal internalisation

Thin-ideal internalisation refers to the extent to which an individual ‘buys in’ to societal ideals of beauty, which are epitomised for women by thinness (Thompson & Stice, 2001). The process of internalisation is thought to occur due to social reinforcement of ideals from a range of sources (e.g. friends, family), meaning that thin-ideal internalisation mediates the relationship between sociocultural pressure to be thin and body dissatisfaction/eating pathology (Thompson & Stice, 2001).

Thompson and Stice (2001) reviewed evidence for thin-ideal internalisation and reported on studies showing that thin-ideal internalisation precedes both body

dissatisfaction and bulimic pathology. In his broader review, Stice (2002) confirmed these findings, synthesising across studies to produce overall effect sizes for the prospective associations between thin-ideal internalisation and body dissatisfaction ($r = 0.18$) and eating pathology ($r = 0.08$). A handful of recent studies have also reported this association (Clark & Tiggemann, 2008; Jackson & Chen, 2008b; Jones, 2004), although findings are not completely consistent (Presnell, Bearman, & Slice, 2004; Wojtowicz & von Ranson, 2011).

In terms of experimental manipulation of thin-ideal internalisation, Stice (2002) discusses preventative interventions that target this factor. These studies provide compelling evidence that decreasing thin-ideal internalisation results in significant reductions in both body dissatisfaction and bulimic pathology compared to wait-list controls (Stice, Chase, et al., 2001; Stice, Mazotti, et al., 2000). Further work on cognitive dissonance-based intervention has solidified this position (Becker et al., 2006; Stice, Marti, et al., 2008; Stice et al., 2006). For example, in a recent study Stice, Marti, Rohde, et al. (2011) have shown that changes in thin-ideal internalisation, produced by cognitive dissonance interventions, fully mediated changes in body dissatisfaction and partially mediated changes in eating disorder symptoms. Overall, therefore, there is good evidence that thin-ideal internalisation is a causal risk factor for body dissatisfaction and for eating pathology.

Perfectionism

Perfectionism has been noted as a clinical feature of eating disorders, particularly anorexia nervosa, and has been implicated in the development and maintenance of these conditions (Bruch, 1979; Hewitt, Flett, & Ediger, 1995; Schmidt & Treasure, 2006). Perfectionism refers to a personality trait in which an individual has a tendency towards setting very high personal standards coupled with negative self-evaluations for failing to meet these standards (Frost, Marten, Lahart, & Rosenblate, 1990). Various dimensions of perfectionism have been proposed, including self-orientated, other-orientated, and socially prescribed perfectionism (Hewitt & Flett, 1991), concern over mistakes, high personal standards, perceptions of high parental expectations and criticisms, doubts over actions, and a preference for order (Frost et al., 1990).

Concerning prospective work, Jacobi et al. (2004) point to four studies noting that none show significant associations between perfectionism and later eating pathology in multivariate analyses. In contrast, Stice (2002) focused on univariate analyses and found an overall small but significant association between perfectionism and later eating pathology, with most studies focusing on bulimic pathology ($r = 0.06$).

Very little additional work has considered the prospective association between perfectionism and body dissatisfaction, with those available showing null results (Wojtowicz & von Ranson, 2011). Similarly, three studies found no association between perfectionism and eating pathology in adolescents (Bachar, Gur, Canetti, Berry, & Stein, 2010; Ferreira et al., 2011; Gustavsson et al., 2011). However, with longer term follow up (2-8 years), Tyrka, Waldron, Graber, and Brooks-Gunn (2002) reported that perfectionism combined with low body weight was predictive of developing anorexia nervosa. In adult samples, significant associations have been found between perfectionism and general eating pathology (Soares et al., 2009) and binge eating (Mackinnon et al., 2011). However, neither of these studies controlled for baseline levels of eating pathology and so this association may be confounded by cross sectional relationships. Using a more complex analysis, Vohs, Bardone, Joiner Jr, and Abramson (1999) report that perfectionism, combined with perceived overweight, predicted later bulimic symptoms, but only in the presence of low self-esteem. This interaction has been replicated several times (Bardone-Cone, Weishuhn, & Boyd, 2009; Cain, Bardone-Cone, Abramson, Vohs, & Joiner, 2008; Holm-Denoma et al., 2005; Vohs et al., 2001), although not in adolescent samples (Shaw, Stice, & Springer, 2004).

Turning to the status of perfectionism as a causal risk factor, one preventative intervention and two experimental studies shed light on this point. Wilksch, Durbridge, and Wade (2008) report on the outcomes of a preventative intervention for eating disorders targeting perfectionism that suggests perfectionism is not a causal risk factor for body dissatisfaction. Although the intervention reduced perfectionism, no changes were seen in weight and shape concerns, implying that perfectionism cannot be causally related to this factor. An alternative approach has been to induce perfectionism in the laboratory through asking participants to behave 'perfectionistically' through adhering to a contract of performing tasks to the highest possible standard. Two studies using this design provide slightly different results, with participants in one study showing reduced

caloric intake and more attempts to restrict (Shafran, Lee, Payne, & Fairburn, 2006), and participants in the second study reporting higher levels of binge eating as well as restraint (Boone, Soenens, Vansteenkiste, & Braet, 2012). In both instances, the extent to which experimentally induced perfectionism is comparable to the personality trait is worth considering.

In summary, evidence for the risk factor status of perfectionism is mixed. From prospective studies there is little support for perfectionism alone increasing risk for eating pathology or body dissatisfaction. However, it may have a role to play in the development of both anorexia nervosa and bulimia nervosa in conjunction with other factors. Experimental studies give some support to the view that perfectionism is a causal risk factor for eating pathology, although the ecological validity of these paradigms has to be questioned.

Impulsivity

A second personality trait that has been explored in relation to eating disorders is impulsivity. Impulsive behaviour can be understood as “a lack of deliberation and failure to consider risks and consequences before acting” (Fahy & Eisler, 1993, p. 193). Binge eating episodes can be construed as impulsive acts as they are associated with loss of control and acting despite known negative consequences (e.g. feelings of guilt and desire to use harmful compensatory behaviours). Typically increased impulsivity is associated with bulimia nervosa and binge eating disorder, and reduced impulsivity is associated with anorexia nervosa (Cassin & von Ranson, 2005). As with perfectionism, multiple dimensions of impulsivity have been explored, including: negative urgency (the tendency to rash action in response to negative emotion), lack of premeditation, lack of perseverance, and sensation seeking (Whiteside & Lynam, 2001).

Stice (2002) assessed the prospective association between impulsivity and bulimic pathology, combining the effects of four studies to conclude a small but significant association ($r = 0.07$). Several prospective studies have considered this question since Stice's review. Results are, however, mixed. Some studies report positive associations: Bodell, Joiner, and Ialongo (2012) found that parental reports of impulsivity for 6 years olds were associated with bulimic symptoms nine years later. In adult samples, Davis and Fischer (2013) found that impulsivity, specifically negative urgency, was associated

with future increases in binge eating. However, null findings are also reported (Anestis, Selby, & Joiner, 2007; Peterson & Fischer, 2012). Wonderlich, Connolly, and Stice (2004) report on three studies showing that trait impulsivity was unrelated to eating pathology. Behavioural measures associated with impulsivity (e.g. delinquency), however, were predictive of increased eating pathology, suggesting that impulsivity may have some role to play in these conditions.

Very little work has considered the role of impulsivity in the development of body dissatisfaction. Wilksch and Wade (2010) found that sensitivity to reward (considered to be one facet of impulsivity) was related increases in clinically significant weight and shape concerns, but this effect was not maintained in multivariate analyses. There has also been no experimental work regarding the causal role of impulsivity in the aetiology of eating pathology.

In summary, there is little evidence that impulsivity is a risk factor for body dissatisfaction, but some evidence that certain facets of impulsivity, such as negative urgency, may be a variable risk factor for bulimic pathology. The link between impulsivity and impulse control behaviours, such as delinquency (Wonderlich et al., 2004) and substance abuse (Stice, 2002), adds weight to the view that some form of impulse control difficulty may be of importance. Whether this role is a causal one is not yet known.

Self-esteem

Self-esteem has been described as “how much value people place on themselves”, and low self-esteem defined within this framework as an “unfavourable definition of the self” (Baumeister, Campbell, Krueger, & Vohs, 2003, p. 2). Low self-esteem has been recognised as a clinical feature of eating disorders (Griffiths et al., 1999), and authors have suggested that low self-esteem may be of importance in the aetiology of these conditions (Button, Sonuga-Barke, Davies, & Thompson, 1996).

Surprisingly, relatively little prospective work has assessed the association between low self-esteem and eating pathology. Jacobi et al. (2004) located four studies and found mixed results, with the overall tentative conclusion that there was some evidence for self-esteem being a variable risk factor. Stice (2002) did not directly review self-esteem,

but noted that two studies supporting the multifactorial model proposed by Vohs and colleagues, in which high perfectionism, high body dissatisfaction and low self-esteem interact to put individuals at risk for bulimic pathology (Vohs et al., 1999; Vohs et al., 2001).

During the last ten years, further prospective studies have explored this relationship. In those using diagnostic criteria to assess eating disorders, there has been consistent support for a link between low self-esteem and the development of eating disorders (Allen, Byrne, Forbes, & Oddy, 2009; Cervera et al., 2003). The link has also been found when specifically considering onset of bulimic pathology (Wichstrøm, 2006) and binge eating in girls (Neumark-Sztainer, Wall, Haines, Story, Sherwood, et al., 2007). In contrast, several studies using general measures of eating pathology, such as the *Eating Attitudes Test*, report no such association (Ferreiro et al., 2011; Gardner, Stark, Friedman, & Jackson, 2000).

In addition to the overall positive findings for eating pathology, there have been a number of studies revealing an association between low self-esteem and a growth in body dissatisfaction (Beato-Fernández et al., 2004; Paxton, Eisenberg, & Neumark-Sztainer, 2006; Wojtowicz & von Ranson, 2011). Both age and gender appear to moderate this relationship: the self-esteem-body dissatisfaction link is more evident in girls than boys (Paxton, Eisenberg, et al., 2006), and also is not reported in very young children (Dohnt & Tiggemann, 2006b).

The status of self-esteem as a causal risk factor has been explored through prevention programmes for eating attitudes and body dissatisfaction that focus specifically on this factor. As noted in the Chapter 1, *Everybody's Different* is a universal school intervention that specifically targets self-esteem and makes no reference to body image or eating pathology (O'Dea, 1995). O'Dea and Abraham (2000) report significant improvements in body dissatisfaction in those adolescents taking the programme compared to controls. This suggests that self-esteem may be a causal risk factor for body dissatisfaction. However, further trials have failed to replicate these results (Ghaderi et al., 2005; Wade et al., 2003) so the current status remains inconclusive. Furthermore, these studies do not include mediation analyses meaning that we cannot clearly demonstrate that changes in body dissatisfaction are mediated by initial changes in self-

esteem. No measures were included of eating disordered behaviours/diagnoses and so these studies cannot shed light on a causal link between self-esteem and eating pathology.

In summary, there is reasonable evidence that low self-esteem is a variable risk factor for eating disorders and body dissatisfaction, particularly in girls, and tentative evidence that self-esteem is a causal risk factor for body dissatisfaction.

Negative affect

Coming onto the final putative psychological risk factor, negative affect is a general term that refers to “subjective distress and unpleasurable engagement” (Watson, Clark, & Tellegen, 1988, p. 1063), and includes mood states such as depression and anxiety. Negative affect is hypothesised to induce pathological eating, particularly binge eating episodes, because eating may be used as a means of distraction from, and management of, these difficult emotional experiences (Stice & Shaw, 2002).

Jacobi et al. (2004) reviewed negative affect within the broader framework of negative affectivity (the disposition towards experiencing negative affect) and general psychiatric morbidity and found mixed results across seven longitudinal studies. However, in several studies negative affect was included in a broader variable with other factors such as body dissatisfaction and ineffectiveness (e.g. Leon, Fulkerson, Perry, Keel, & Klump, 1999 report on a general factor 'negative affect/attitudes'), so it is difficult to untangle the effect of negative affect alone from these studies. In the update of this review, Jacobi and Fittig (2010) note that two further studies found associations between general measures of depressed mood/anxiety and bulimia nervosa and partial eating disorder syndromes. Stice (2002) reviewed 13 studies of negative affect and eating pathology concluding an overall small but significant prospective association between these factors ($r = 0.09$). The form of eating pathology moderated the effect size, such that negative affect seemed to be of particular relevance for bulimic pathology (Stice, 2002).

Work carried out more recently adds weight to the evidence that negative affect is a variable risk factor for eating pathology, at least in girls. Several studies have shown that negative affect is prospectively associated with eating disorder diagnoses and symptoms (Jackson & Chen, 2008a; Stice, Marti, & Durant, 2011), onset of binge eating

(Neumark-Sztainer, Wall, Haines, Story, Sherwood, et al., 2007), and bulimic pathology (Dobmeyer & Stein, 2003; Wichstrøm, 2006) in girls. No association was found with anorexic pathology (Dobmeyer & Stein, 2003), and in one study the link disappeared when other psychosocial factors were included in the analyses (Jackson & Chen, 2008b). Jacobi et al. (2011) also found that a past diagnosis of depression was one of the best predictors of onset of full or sub-threshold eating disorders in a group of high-risk women. In contrast, few studies show a prospective association between negative affect and eating pathology in boys (Jackson & Chen, 2008b; Neumark-Sztainer, Wall, Haines, Story, Sherwood, et al., 2007; Wichstrøm, 2006).

In considering experimental investigations of induced negative mood and eating pathology, Stice (2002) reviewed studies showing that lowered mood was associated with increased in body dissatisfaction but not with increased caloric intake. This implies that negative affect is a causal risk factor for body dissatisfaction and a variable risk factor for bulimic eating pathology. It should be borne in mind, however, that mood inductions in the laboratory setting may speak little to longstanding dispositional tendencies towards negativity. This means that the apparent lack of causal association between negative affect and eating behaviours found in these studies should be interpreted with caution.

More generalizable results can be derived from studies in which interventions directly target negative affect with the intention of long-term effects. Burton, Stice, Bearman, and Rohde (2007) implemented a CBT-based depression intervention to women and found that reductions in depression scores mediated reductions in bulimic symptoms. However, a further study was unable to replicate this finding (Stice, Rohde, Seeley, & Gau, 2008), making it difficult to draw conclusions about the causal role of negative affect.

Overall there is tentative evidence in favour of negative affect being a causal risk factor for body dissatisfaction and bulimic pathology, particularly in girls. However, further naturalistic experimental studies would be valuable to confirm the causal status of negative affect given that the available evidence is mixed.

Social factors

Turning now to social factors – those involving the actions of other people – a number of aspects have been implicated in the aetiology of eating disorders and body dissatisfaction. These include a *perceived pressure to be thin*, *modelling of eating pathology* and *appearance-related teasing*. In addition, I discuss further evidence for *appearance conversations*, or ‘fat talking’, which was introduced as a putative social risk factor for body dissatisfaction in Chapter 2. Where possible, I focus on interactions with peers rather than those with family members as these are of most relevance for classroom interventions.

Perceived pressure to be thin

Central to sociocultural theories of eating disorders is that there is pressure to conform to particular idealised appearance norms from a range of sources, including media images, family members and peers (Thompson, Heinberg, et al., 1999). Given that these norms are typically unattainable, the result of this pressure can be body dissatisfaction and eating pathology. Longitudinal studies of perceived pressure to be thin were reviewed by Stice (2002). This revealed that perceived pressure is significantly prospectively associated with both eating pathology ($r = 0.12$) and body dissatisfaction ($r = 0.09$).

Longitudinal studies conducted more recently than Stice’s review, however, provide mixed findings. In terms of associations with eating pathology, a number of studies report the expected associations (Jackson & Chen, 2008b; Taylor et al., 2003) but null findings are also given (Espinoza, Penelo, & Raich, 2010; Linville, Stice, Gau, & O’Neil, 2011; Stice, Marti, & Durant, 2011). Similarly, mixtures of results are reported for body dissatisfaction (Dohnt & Tiggemann, 2006b; Linville et al., 2011; Presnell et al., 2004). There are no obvious moderating factors (e.g. age of participants, size of study) that shed light on these contradictions.

The causal role of pressure to be thin has been explored through paradigms involving exposure to media images of thinness. These studies show that there is a causal association between viewing images of thinness and body dissatisfaction, although one that is pronounced in certain vulnerable groups. For example, in a meta-analysis of laboratory-based studies, Groesz, Levine, and Murnen (2002), found an overall

association between exposure to media images and body dissatisfaction, especially in younger women with initially elevated levels of body dissatisfaction. Similarly, Stice, Spangler, and Agras (2001) used a naturalistic paradigm, which involved randomly providing women with subscriptions to fashion magazines. In this study, exposure to the magazine was associated with increased body dissatisfaction compared to controls, but only for those women who perceived themselves as lacking support from others.

There are several factors to consider with this research. The laboratory paradigms may lack external validity, as the tasks may not relate well to how people choose to view media images in their everyday life. Second, although the prospective studies use questionnaire measures that generally tap in to perceived pressure from a range of sources, the experimental studies focus specifically on increased pressure to be thin from media images alone. We know little, then, about the potential causal status of perceived pressure from peers.

In summary, although there is meta-analytic evidence that perceived pressure to be thin is associated with future eating pathology and body dissatisfaction, recent studies show mixed findings. Evidence from experimental studies may shed light on why there are contrasting findings as these studies show that pressure to be thin from media images does not affect all individuals equally. Rather, negative outcomes for body dissatisfaction are seen disproportionately for certain vulnerable groups, such as women with low support from others, or those who already struggle with body dissatisfaction. This suggests that perceived pressure (from the media at least) is a causal risk factor for body dissatisfaction in certain groups and is a variable risk factor for eating pathology.

Modelling of peer eating pathology

Several theorists have noted a tendency for eating pathology to cluster within families (Pike & Rodin, 1991) and friendship groups (Fletcher, Bonell, & Sorhaindo, 2011; Paxton et al., 1999), and have therefore suggested that individuals may model pathological eating attitudes and behaviours from those around them (Lieberman et al., 2001; Pike, 1995). Modelling refers to an indirect form of influence whereby an individual will imitate the behaviour of someone else without necessarily any encouragement to do so (Bradford Brown, 2004). It is typically operationalized through

questions assessing perceived peer dieting, body dissatisfaction and eating pathology, such as those in the *Bulimic Modeling Scale* (Stice, 1998).

Stice (2002) reports on three studies assessing the association between peer eating pathology and onset of body dissatisfaction and bulimic pathology. Although there was no evidence of modelling of body dissatisfaction, there was an association between perceived peer eating pathology and later binge eating and bulimic pathology ($r = 0.16$). A similar story emerges from more recent literature. The majority of studies assessing peer modelling and increases in body dissatisfaction report null results (Helfert & Warschburger, 2011; Linville et al., 2011; Paxton, Eisenberg, et al., 2006; Woelders, Larsen, Scholte, Cillessen, & Engels, 2010), although some studies do report significant prospective associations with body dissatisfaction in adolescent girls (Helfert & Warschburger, 2011; Paxton, Eisenberg, et al., 2006). A number of studies have also assessed the prospective association of modelling of peer bulimic pathology. Results are mixed and difficult to interpret, with both null (Linville et al., 2011; Neumark-Sztainer, Wall, Haines, Story, Sherwood, et al., 2007) and significant results being reported for young men and women (Eisenberg & Neumark-Sztainer, 2010; Zalta & Keel, 2006).

No studies have assessed the causal status of modelling of peer eating pathology. Therefore, in summary, there is little evidence that modelling of peer attitudes and behaviours is a variable risk factor for body dissatisfaction but some evidence that this factor may be a variable risk factor for bulimic pathology. However, it is worth noting that with the exception of Linville et al. (2011) and Zalta and Keel (2006), these studies relied on participant self-report of peer eating pathology/body dissatisfaction. This raises two problems. First, the accuracy of these self-reports is questionable and is likely to be affected by factors such as one's own attitudes towards pathological eating. Second, this literature is interpreted as evidence of modelling of peer behaviours. Although having friends who experience pathological eating (and who you perceive to be experiencing pathological eating) is a necessary condition for modelling, this alone is not sufficient to conclude that modelling has occurred, as other processes may underlie the association.

Appearance-related teasing

A further putative social risk factor is appearance-related teasing. Teasing is complex phenomenon, defined as: “direct communication between a teaser and a target that combines intentional provocation with humor or playfulness” (Jones, Newman, & Bautista, 2005). Other authors have expanded the focus to include a range of negative verbal commentaries relating to weight and shape, which may not necessarily include a humorous element (Herbozo & Thompson, 2006).

Menzel et al. (2010) conducted a meta-analysis of the association between teasing experiences and eating pathology. The results showed that there was significant correlation of medium effect size between appearance- and weight-related teasing and body dissatisfaction, dietary restraint and bulimic pathology ($r_s > 0.32$). There are two limitations to the conclusions of this review. The first is that both cross sectional and longitudinal studies were included so the results only pertain to whether teasing experiences are *correlates* of this pathology. The second is that, although we know that most teasing experiences come from peers (Rieves & Cash, 1996), it was not possible for the authors to distinguish between teasing from different sources.

A number of large studies assess the effects of teasing on later eating pathology and body dissatisfaction. In a study of high-risk women, Jacobi et al. (2011) found that perceived negative comments about weight from teachers/coaches was the best predictor of onset of a full or sub-threshold eating disorder (the majority of which were bulimic or binge eating-type). Two cohort studies are also of interest: the *Project EAT* studies report on an American cohort of around 2,500 adolescents who have been followed since 1998/9. Five year follow up data showed that frequent weight-teasing (defined as being teased a few times a year or more) was associated with later eating pathology with a differential pattern between the genders (Haines, Neumark-Sztainer, Eisenberg, & Hannan, 2006). For girls, weight teasing was associated with later frequent dieting, and for boys weight teasing was associated with later binge eating and unhealthy weight control behaviours. Slightly different results are reported from the *Growing Up Today Study* (GUTS), which followed over 12,000 young people over seven years. In this group, negative comments about weight from males was associated with an onset of purging behaviour in girls, and negative comments about weight from fathers was associated with onset of binge eating behaviour in boys (Field et al., 2008). Taken

together, the consistent prospective link seems to be between teasing and bulimic pathology.

Although these cohort studies suggest teasing may be a variable risk factor for body dissatisfaction and eating pathology, there are several important caveats. The first is that these results have not been replicated cross-culturally, with teasing being unrelated to future eating pathology in Chinese adolescents (Jackson & Chen, 2008a, 2008b). Second, appearance teasing appears to be unrelated to future body dissatisfaction, after initial levels of body dissatisfaction have been controlled for (Cattarin & Thompson, 1994; Eisenberg, Neumark-Sztainer, Haines, & Wall, 2006; Jones, 2004; Stice & Whitenton, 2002; Wertheim, Koerner, & Paxton, 2001). Therefore, although appearance teasing is associated with body dissatisfaction concurrently, does not seem to predict increases in body dissatisfaction.

In terms of the causal association between teasing and eating pathology, there is very little work available. One prevention study directly targeted weight teasing in schools and successfully reduced experiences of teasing (Haines, Neumark-Sztainer, Perry, et al., 2006). However, no differences between the intervention group and a control group were found for body dissatisfaction, dieting or unhealthy weight control behaviours, suggesting that changes in teasing do not mediate any change in these outcomes.

These studies suggest that appearance-related teasing is a variable risk factor for eating pathology, in particular binge eating/bulimic behaviours, but that cultural background may moderate this effect. There is little evidence that appearance teasing is a risk factor for body dissatisfaction.

Appearance conversations

Focusing further on how peers may exert pressure to be thin, in Chapter 2, I reviewed a range of evidence for one peer-related factor: appearance conversations, or ‘fat talking’. At that point, I concluded that there is evidence in favour of this factor being a causal risk factor for body dissatisfaction. In terms of eating pathology, despite a range of cross sectional studies (Jackson & Chen, 2010; MacDonald Clarke et al., 2010; Paxton et al., 1999) there has been very little prospective research regarding the association between appearance conversations and eating pathology. The lone exception is the work of

Jackson and Chen (2011), in which appearance conversations with friends were found to be predictive of increased eating pathology one year later. This was especially true for girls in the sample.

There have been no experimental investigations of the effect of appearance conversations on eating pathology, although several prevention programmes do target this phenomenon. *Happy Being Me* was found to produce changes in dietary restraint (but not bulimic symptoms) (Richardson & Paxton, 2010), and the *Body Project*, a cognitive dissonance intervention with a section on fat talking, produces changes in bulimic pathology and dieting (Stice, Chase, et al., 2001; Stice, Marti, et al., 2008). It is not known, however, whether these effects on eating pathology were mediated by changes in appearance conversations. As such, appearance conversations can be classified as a causal risk factor for body dissatisfaction and a variable risk factor for eating pathology.

Behavioural factors

Dieting

Of the putative behavioural factors presented at the beginning of this chapter, dieting is that which is most feasible to target in classroom-based interventions. Dieting is defined as “a state of negative energy balance between caloric intake and expenditure” (Presnell & Stice, 2003, p. 166), and often operationalized through self-report questions such as “How often have you gone on a diet during the last year? By ‘diet’ we mean changing the way you eat so you can lose weight.” (Neumark-Sztainer, Wall, Haines, Story, & Eisenberg, 2007, p. 449). Given that food restriction is a central clinical feature of anorexia nervosa, it can be difficult to clearly separate dieting as a risk factor from dieting as prodromal eating pathology (Jacobi et al., 2004; Stice, Ng, & Shaw, 2010). Dieting has, however, been clearly hypothesised to be linked to binge eating episodes (Polivy & Herman, 1985) both through physiological changes induced by dieting, and through cognitive/affective responses to failures to maintain strict diets, known as the ‘abstinence-violation effect’ (Marlatt & Gordon, 1985; Ward, Hudson, & Bulik, 1993).

In considering the longitudinal associations between dieting and eating pathology, Jacobi et al. (2004) highlight the work of Killen (Killen et al., 1996; Killen et al., 1994)

and Patton (Patton et al., 1990; Patton et al., 1999), which suggests that adolescents that define themselves as dieters are at significantly greater risk of developing partial and full cases of eating disorders compared to their non-dieting peers. Similar findings were reported in Stice (2002), where nine studies combined to suggest an overall small effect of self-reported dieting on bulimic symptoms and composite scores for eating pathology ($r = 0.13$). More recent prospective studies have also shown that self-reported dieting predicts future eating disorder diagnoses (Stice, Marti, & Durant, 2011), as well as binge eating (Neumark-Sztainer, Wall, Haines, Story, Sherwood, et al., 2007), the use of unhealthy weight loss techniques (Neumark-Sztainer, Wall, Haines, Story, Sherwood, et al., 2007), and body dissatisfaction (Bearman, Presnell, Martinez, & Stice, 2006).

Although the evidence from prospective studies is strong, when Stice (2002) considered experimental studies assessing the effects of dieting on eating pathology the results were far more complex. Laboratory studies in which participants were asked to limit food intake over a period of hours showed that food restriction was (as expected) associated with greater caloric intake and binge eating ($r = 0.29$, Stice, 2002). Evidence to the contrary, however, arose from obesity treatment literature in which overweight individuals who were placed on low calorie diets experienced *fewer* binge eating episodes compared to weight list controls ($r = -0.31$). More recent experiments assigning young women to six week weight-loss diets have confirmed these findings (Groesz & Stice, 2007; Presnell & Stice, 2003). The preventative effect of dieting has also been demonstrated through the *Healthy Weight* intervention for eating disorders, which has been shown to reduce body dissatisfaction and eating pathology through focusing on healthy and effective weight management techniques (Becker et al., 2012; Stice, Marti, et al., 2008).

The contrasting findings regarding the risk factor status of dieting are intriguing. Stice (2002) makes several points of interest. First, the laboratory studies of restricted food intake are likely to be biased by demand characteristics. Second, it seems that measures of perceived dieting used in prospective studies are not actually tapping into caloric restriction. The difference between self-report studies and dieting interventions is that in dieting interventions changes in BMI show that there is successful manipulation of energy balance (Groesz & Stice, 2007). However, self-reported dieting is predictive of

weight *gain* in the long term (Neumark-Sztainer, Wall, et al., 2006) and studies show that self-reported dieters do not actually consume fewer calories than non-dieters, either in laboratory or naturalistic settings (Martin et al., 2005; Stice, Cooper, Schoeller, Tappe, & Lowe, 2007).

The conclusion drawn by Stice (2002) is that objective dieting, characterised by a reduction in caloric intake, is not a risk factor for eating disorders. Self-reported dieting is associated with future eating pathology not because of objective dieting, but rather that these measures are tapping into something else, such as a preoccupation with weight and shape, or using dieting attempts to try to manage overeating. Reducing objective dieting, therefore, should be not a focus of preventative interventions (indeed the opposite is true), although targeting factors driving people to attempt diets or to self-report as dieting may be worth exploring.

Biological factors

Body mass index

In contrast to the social and psychological factors raised so far, BMI is the biological factor most of relevance for classroom intervention. BMI is defined as body mass (kg) divided by height (m) squared and is a proxy measure for adiposity. Elevated BMI is hypothesised to increase the risk of eating pathology through greater pressure from peers and family members to be thin and the greater likelihood of experiencing body dissatisfaction because of higher discrepancy between ideal and actual body shapes (Stice & Shaw, 2002).

Reviews show that prospective studies assessing the relationship between BMI and eating pathology have mixed results. Based on seven longitudinal studies, Jacobi et al. (2004) conclude that BMI cannot be classified as a risk factor, as evidence was too inconsistent. A similar message emerges from Stice (2002), who concluded that the prospective association between BMI and eating pathology combined from 11 studies was “trivial but significant” ($r = 0.04$, $p = .827$).

In terms of more distal relations, Stice (2002) reports a small prospective association between BMI and later body dissatisfaction ($r = 0.16$). In the time since Stice’s review was conducted, several other studies have also reported this association. For example, in

the *Project EAT* cohort, elevated BMI was found to be associated with greater body dissatisfaction five years later (Paxton, Eisenberg, et al., 2006). The relationship has more often been found for girls than boys (Jones, 2004; Lunde, Frisén, & Hwang, 2007). As with the results for eating pathology, however, some null findings are also reported (Byely, Archibald, Graber, & Brooks-Gunn, 2000).

Several studies shed light on whether BMI is causally associated with body dissatisfaction. As noted above, dieting interventions have produced reductions in BMI as well as reductions in eating pathology (Groesz & Stice, 2007; Presnell & Stice, 2003). However, no mediation analyses are reported, which would confirm or refute the assumption that changes in BMI mediate changes in body dissatisfaction. There is, however, a large amount of literature on this question from randomised trials of obesity treatment programmes, where there is good evidence that BMI reduction is associated with improvements in body dissatisfaction (Sorbara & Geliebter, 2002; Stewart et al., 2010). The extent to which these findings can be generalised to individuals within a healthy weight range, however, is questionable, as participants in these trials are severely overweight. In addition, other work has shown that following weight loss intervention perceived changes in weight are of greater predictive power for body dissatisfaction than actual changes in weight (Martin Ginis, McEwan, Josse, & Phillips, 2012). This implies that BMI per se is not a causal risk factor for body dissatisfaction.

One of the difficulties of interpreting the studies on whether BMI is a risk factor for eating pathology and body dissatisfaction is that it is likely that relationships between these variables are non-linear. In fact, non-linear relationships have been demonstrated for the association between BMI and body dissatisfaction in young men, with those who are both underweight and overweight being at risk (Presnell et al., 2004). Linear analyses, therefore, may mask actual underlying associations. However, at this point there is little evidence that elevated BMI is a causal risk factor for eating disorders or body dissatisfaction.

Summary

Given the length of this section, a brief summary of the above discussion is provided in Table 4.1, below. Several factors emerge as particularly good candidates for preventative interventions, notably thin-ideal internalisation and negative affect, as there is at least

some evidence that these are causal risk factors for both body dissatisfaction and eating pathology. Other factors also show promise: self-esteem, perfectionism, perceived pressure to be thin, and appearance conversations. These have been shown to be causally associated with either body dissatisfaction or eating pathology.

Table 4.1: *Summary of evidence for putative causal risk factors for body dissatisfaction and eating pathology.*

	Causal or variable risk factor for...	
	...Body dissatisfaction?	...Eating pathology?
<i>Psychological factors</i>		
Body dissatisfaction	-	Causal
Thin-ideal internalisation	Causal	Causal
Perfectionism	X	Causal
Impulsivity	X	Variable
Self-esteem	Causal	Variable
Negative affect	Causal	Causal
<i>Social factors</i>		
Perceived pressure to be thin	Causal	Variable
Modelling of peer eating pathology	X	Variable
Weight-related teasing	X	Variable
Appearance conversations	Causal	Variable
<i>Behavioural factors</i>		
Dieting – calorie restriction	X	X
Dieting – self-reported	Variable	Variable
<i>Biological factors</i>		
BMI	Variable	X

Some caveats on this summary must be reiterated. The first is that very few prospective or experimental studies have focused specifically on risk factors for anorexia nervosa. Instead, studies tend to address risk for the onset of any eating disorder (e.g. Stice, Marti, & Durant, 2011), associations of risk factors with scales of binge eating and

bulimic pathology (e.g. Beato-Fernández et al., 2004; Neumark-Sztainer, Wall, Haines, Story, Sherwood, et al., 2007) or composite measures of overall eating pathology (Jackson & Chen, 2011). This means that prevention programmes cannot, at this point, be well tailored to anorexia nervosa.

Second, few studies have assessed how different risk factors may interact. There are several exceptions to this assertion, such as the work of Stice, Marti, and Durant (2011), Vohs et al. (2001), Taylor et al. (2003), Agras, Bryson, Hammer, and Kraemer (2007) and Jacobi et al. (2011). However, in general we know little about how risk factors work together and little about potential moderating factors, such as gender and cultural background, that would allow us to tailor interventions to subsets of individuals with distinct risk pathways.

Third, I have focused specifically on risk factors and have not discussed protective factors. This is because there is some inconsistency in the definition of protective factors that is used in the current literature. One on hand, *protective factors* are defined as those that increase the likelihood of a welcome outcome (Croll, Neumark-Sztainer, Story, & Ireland, 2002; Kraemer et al., 1997; Steiner et al., 2003; Zucker, Womble, Mlliamson, & Perrin, 1999). Essentially, this conceptualisation is the inverse of the definition for risk factors. Based on this approach, protective factors are those discussed above that reduce the risk of eating disorders (e.g. high self-esteem).

However, the term *protective factors* has also been used with a subtly different meaning, stemming from work on resilience (Rutter, 1985). This definition describes protective factors as those that moderate the effect of risk on the outcome. Importantly, in this case protective factors are not simply the inverse of risk factors. Rather their effect is interactive, such that the influence of protective factors can be observed only in the face of risk (Ferreiro et al., 2011; McVey, Pepler, Davis, Flett, & Abdoell, 2002; Rutter, 1985; Westerberg-Jacobson, Edlund, & Ghaderi, 2010). Based on this, the literature discussed in this chapter cannot shed light on protective factors. As noted, there are relatively few studies assessing how factors interact with each other that would allow us to explore potential protective factors at this point. In adopting either definition, then, there is little additional to be said about protective factors for eating disorders.

Using risk factor literature to inform the intervention content

Based on the findings of this risk factor review, it was decided that the six sessions of the intervention would focus on three areas, targeting: (1) internalisation of the thin-ideal; (2) peer pressure toward thinness and appearance conversations; and (3) negative affect and self-esteem.¹⁶

Considering the process of content development, in the focus groups reported in Chapter 3 school students highlighted the value of student self-discovery in lessons. Discussion with school staff and evidence from previous meta-analyses confirmed that lesson content should be as interactive as possible and avoid didactic presentation of material (Stice & Shaw, 2004; Stice, Shaw, et al., 2007). Intervention content was developed through consideration of approaches and types of activities in existing universal interventions during adolescence, as well as input on drafts from key stakeholders, as outlined at the beginning of this chapter in Figure 4.2 (p. 104).

Thin-ideal internalisation

In previous work, thin-ideal internalisation has been targeted through two approaches: cognitive dissonance interventions and media literacy interventions. Cognitive dissonance interventions are driven by cognitive dissonance theory (Festinger, 1957), which states that individuals are driven to resolve disparities between attitudes and external behaviours. As such, for those invested in the thin-ideal, counter attitudinal actions denouncing the thin-ideal result in attitude change. Media literacy is driven by the principle that individuals are not passive recipients of media content but rather choose to interact with and consume media in distinct ways. As such, through using the concepts of literacy, activism, and advocacy, media literacy interventions can promote active engagement with, and critique of, media items (Levine et al., 1999). This process aims to bring into question the messages of the thin-ideal presented in these media and so promote attitude change about the legitimacy of this ideal.

¹⁶ Although there was some evidence that perfectionism is causally associated with eating pathology, it was decided not to include a focus on this factor. There were several reasons for this. First, the lack of outcomes for body dissatisfaction for the previous intervention focusing on perfectionism were concerning (Wilksch et al., 2008). Second, there was limited evidence that perfectionism was a variable or causal risk factor for body dissatisfaction or eating disorders in adolescent samples (Bachar et al., 2010; Ferreiro et al., 2011; Shaw et al., 2004).

Both cognitive dissonance and media literacy interventions have been delivered during adolescence (Stice, Marti, et al., 2008; Wilksch & Wade, 2009). However, cognitive dissonance has not been delivered within a universal intervention context.¹⁷ Rather, the focus has been on combatting thin-ideal internalisation in those with elevated risk for eating disorders (Stice, Chase, et al., 2001; Stice et al., 2006). In contrast, as discussed in the Chapter 1, media literacy has been delivered in universal forms with some success (Wilksch & Wade, 2009).

The contents of several universal interventions in adolescence with media literacy were therefore considered, with the aim of understanding typical content and approach. Examples of content from *Media Smart* (Wilksch & Wade, 2009; further details kindly provided by Wilksch, personal communication), *Happy Being Me* (Richardson & Paxton, 2010), and the *Aesthetic Model Criticism and Media Literacy Program* (Raich et al., 2008) are shown in Appendices C.1 – C.3. Common themes included: tactics that are used in advertising images; tacit messages hidden in media images (e.g. physical attractiveness is a key to happiness); how beauty ideals change across time and space; and how to take action (e.g. letter writing campaigns).

Drawing on these core media literacy elements, drafts of two lessons were designed. These were shown to the key stakeholders as well as eating disorder experts discussed earlier. Feedback on these drafts was then incorporated into a final version.

Perceived peer pressure to be thin and appearance conversations

Several previous interventions have targeted negative peer interactions through combatting weight-related teasing and negative weight-related comments from peers (Haines, Neumark-Sztainer, Perry, et al., 2006; McVey et al., 2004; McVey, Lieberman, Voorberg, Wardrobe, & Blackmore, 2003; Richardson & Paxton, 2010; Wilksch & Wade, 2009). However, given that there is limited evidence that weight-

¹⁷ Although the work of Stice and colleagues focuses on selective intervention, cognitive dissonance models in sororities, led by Becker (Becker, Bull, Schaumberg, Cauble, & Franco, 2008), are more ambiguous regarding the selective/universal divide. The debate rests on whether sorority members can be considered at elevated risk for eating disorders. There is some evidence that this is so (Basow et al., 2007). Regardless, this programme has been aimed at adult women and so is of less relevance to the current focus on adolescent intervention.

related teasing is a causal risk factor for eating pathology, this did not seem to be a fruitful approach. As such, we decided to focus on appearance conversations – ‘fat talking’ – with peers, as a means a reducing perceived pressure to be thin. In early discussions, school staff were interested in the concept of fat talking and thought that students would not have encountered the idea before.

One previous universal intervention, *Happy Being Me*, has combatted fat talking (Richardson & Paxton, 2010). This programme’s content, shown in Appendix C.3, focused on the impact of fat talking, and building skills to manage fat talking. In addition, the selective intervention, *The Body Project*, has a section focusing on fat talking (Stice & Presnell, 2007). This is shown in Appendix C.6. Again, these materials focus on recognising fat talking, and strategies for reducing the amount of fat talking we engage in. Building on these approaches, two lessons were developed for the current intervention that covered defining fat talking, reasons why we might fat talk, a debate around the link between appearances and happiness, and strategies for positive peer interactions through practicing giving and receiving genuine compliments. Again, these lessons were reviewed by stakeholders and final versions developed.

Negative affect and self-esteem

Previous interventions targeting negative affect and low self-esteem – *Every Body is a Somebody* (McVey & Davis, 2002) and *Everybody’s Different* (O’Dea & Abraham, 2000) – focus on managing stress, individual differences and strengths, and building communication and relationship skills. Outlines of content of these interventions can be found in Appendices C.4 & C.5. Looking more broadly, CBT approaches have proved helpful in universal interventions for depression and anxiety, even when delivered by teachers (Calear & Christensen, 2010).

In considering ways to make CBT informed interventions accessible and acceptable to the teaching staff involved in the development of the programme, positive psychology approaches were explored. Positive psychology interventions are based on CBT principles with a focus on promoting well-being, building on personal strengths and boosting resilience (Seligman, 2011). The principles have been applied to school interventions with success (Seligman, Ernst, Gillham, Reivich, & Linkins, 2009). In

addition, teaching staff on this project were keen to develop lessons that would be naturally uplifting and fun for students.

Drawing on positive psychology principles and exercises (Peterson & Seligman, 2004; Seligman, 2011), two lessons were created focusing on recognising personal strengths and on small steps to promoting well-being. Three exercises were based on those described in Seligman (2011). First, students had to determine their character strengths, based on those defined in the Character Strengths and Virtues Handbook (Peterson & Seligman, 2004), and to think about how to exercise them. Second, students were given a homework exercise to note down three things that went well each day, to promote positive thinking. And, third, students were encouraged to write a gratitude letter to someone in their life. Stakeholders reviewed draft lesson plans and recommendations were incorporated.

Intervention form

In addition to the content of the intervention material, there were a number of questions regarding the intervention form that were important to consider. The arguments for conducting universal intervention delivered by teachers are included in Chapter 1. The additional factors considered here are:

- What is the best age to intervene?
- Will the intervention specifically target girls?
- What materials and training should teachers receive?
- How many sessions should the intervention have?
- And how long should each session be?

Although presented separately here, the development process for the intervention form was conducted in parallel with that of the content, discussed above.

What is the best age to intervene?

The decision to have the intervention delivered within the UK secondary school setting leaves open the question of what age participants should be, with the possible options ranging from 11 years to 18 years. Theoretically speaking, universal prevention of eating disorders should be delivered prior to the peak onset of eating disorders in order to prevent cases in the first instance. Incidence rates are difficult to determine and they rely

on detection of cases in the community, but studies suggest that peak onset tends to occur between 15 and 19 for anorexia nervosa and between 16 and 20 for bulimia nervosa (Smink, van Hoeken, & Hoek, 2012). This implies that theoretically driven universal prevention should work with those aged 14 years and under.

Most universal interventions have been designed for those who are aged 12 and 13 (e.g. McVey, Lieberman, Voorberg, Wardrope, & Blackmore, 2003; O'Dea & Abraham, 2000; Raich, Portell, & Peláez-Fernández, 2010; Steiner-Adair et al., 2002; Wade et al., 2003; Wilksch & Wade, 2009), and interventions in this age range include those that have been successful at reducing risk factors for eating disorders (Richardson & Paxton, 2010; Wilksch & Wade, 2009).

From an empirical and theoretical standpoint, this leaves open the window of promising universal intervention between the ages of 11 to 14 years, roughly translating into years 7 – 10 in the UK school system. Discussions with school staff revealed that intervention in year 10 should probably be avoided as this is the year that students begin formal examinations and so curriculum time for additional material may be limited. In addition, some staff raised concerns about lessons of this sort for students in year 7 as these students would have just entered secondary school and therefore may feel less comfortable discussing these topics with their new classmates.

Overall, based on these different sources of data, we decided that the intervention should be designed for participants in years 8 and 9, who would typically have an age of 12 – 14 years.

Will the intervention specifically target girls?

The vast majority of interventions for the prevention of eating disorders specifically target girls or women (e.g. Becker et al., 2005; Elliot et al., 2004; Franko et al., 2005; McVey, Lieberman, Voorberg, Wardrope, & Blackmore, 2003; Stice, Trost, et al., 2003; Winzelberg et al., 2000). The rationale is that as the prevalence of eating disorders is greater in women than men, interventions would be more efficient if aimed at this higher risk group. However, when specifically considering interventions that have been delivered within a classroom setting, the number of trials working with boys and girls together is more substantial (Dalle Grave et al., 2001; Ghaderi et al., 2005; O'Dea & Abraham, 2000; Wade et al., 2003; Wilksch & Wade, 2009).

To an extent the development of mixed gender interventions for the classroom is driven by pragmatic considerations that if a programme is going to be deliverable in a normal school setting it cannot be applicable for only half of the students. There are also substantial theoretical reasons for including boys in intervention. First, there is a growing consensus that body dissatisfaction and eating pathology may not be as infrequent in males as has previously been suggested (McCabe & Ricciardelli, 2003a; Striegel-Moore et al., 2009), and so this group may warrant preventative efforts. Second, if we understand that some risk factors for eating disorders are peer-related, then involving the wider peer group in prevention may be an important measure to reduce this risk (Paxton, 1996).

School staff recommendations about whether to deliver these lessons to groups of girls only or to mixed gender groups were divided. Practical considerations of splitting classes were raised. It was highlighted that the dynamics of the individual class may be of importance and that mixed gender groups may work well in certain settings but be a hindrance in others. A questionnaire study with students suggested that young people are also divided on this issue: 75 percent of girls and 58 percent of boys report that they would prefer to have lessons about body image in mixed gender groups (Yager, 2012), with the remainder reporting they would rather have single sex groups.

In drawing together these findings, it was decided that the material would be initially developed for mixed gender classrooms. This would create the most widely disseminable programme, an essential feature of universal intervention. In addition, previous interventions have shown that it is possible to deliver relevant, engaging and efficacious programmes to mixed gender classrooms of adolescents (McVey et al., 2007; Wade et al., 2003; Wilksch & Wade, 2009) suggesting the outcome of the pragmatic approach is also feasible.

What materials and training should teachers receive?

Previous studies have suggested that teachers may struggle to deliver intervention material in full (Levine, Smolak, & Schermer, 1996). Furthermore, when asked whether they would be likely to deliver lesson plans developed about eating disorder prevention, teachers generally say that they would most likely lack the time to do so, and would prefer informative materials, such as pamphlets and videos (Smolak et al., 2001). These

findings underlie the importance of creating appropriate materials, which engage teaching staff, meet their teaching needs, and require minimum effort to deliver.

Reports of previous interventions generally do not provide detailed information about materials used or the training that was provided. Most studies make reference to some form of teachers' manual, which contains guides for lesson content for each of the sessions (Ghaderi et al., 2005; Levine et al., 1996; McVey et al., 2007; Wade et al., 2003). Additional materials, such as books, videos and slides, are also sometimes provided (Favaro et al., 2005; McVey et al., 2007).

In terms of training, the content and process of teaching the material are usually both explored, the length of training ranges from several hours to a full day (Smolak et al., 1998; Wade et al., 2003). Favaro et al. (2005) report that teachers were given training covering: "adolescent health and development, the nature, clinical features of, and risk factors for, eating disorders, and critical reflection on prevention. Teachers also received training in conducting group sessions, and in utilizing students' existing knowledge in the discussions" (p. 74). This suggests that teachers were also given a general introduction to the topic of eating disorders. Other trials have also viewed general information for staff about eating disorders to be important, even if teachers were not directly delivering the sessions (Austin, Field, Wiecha, Peterson, & Gortmaker, 2005; Neumark-Sztainer, Butler, & Palti, 1995; Stewart et al., 2001).

Discussion with school staff in the current project revealed that, in line with Smolak et al. (2001), teachers were interested in a range of materials about eating disorders. In contrast to findings from Smolak et al. (2001), however, staff were keen for lesson plans as long as they were 'pick up and go' materials meaning that time spent preparing for lessons was minimal. The structure of typical lessons was outlined, with the need for a short starter activity, intended to engage students with the topic, then two or three main activities, followed by a concluding task drawing together what had been covered in the lesson. Lessons in this format would be typical of what teachers received for normal personal, social and health education lessons. It was also highlighted that being able to tailor activities to differing educational needs of students in the class (e.g. having extension activities for able students) would be beneficial.

When asked about training, staff were keen to have training generally about eating disorders – signs, symptoms and risk factors – and felt that it would be helpful if this were open to any interested staff in the school, rather than being limited to those involved in the intervention. This is in line with student recommendations that staff receive training about eating disorders (Chapter 3). The question of timings and locations of training was also discussed. The research team suggested a centralised training day for all involved staff from participating schools. However, school staff noted that taking school staff out of teaching time would be logistically difficult and expensive (as cover staff would have to be paid for).

Overall, based on these considerations, we decide to provide a Facilitator's Guide for the intervention material, which would contain general background information as well as lesson plans constructed in the manner suggested by the school staff. We would also provide additional materials to make sure that the lessons were easy to deliver in the form of Powerpoint slides and Student Workbooks, which would complement the lesson plans. The training would take place at the teachers' individual schools and would consist of two hours, which could be delivered in a 'twilight session' immediately after the end of the teaching day and so cause minimal disruption. The first hour of the training would be open to all school staff and would cover an introduction to eating disorders and the justifications for prevention. The second hour of the training would be specifically targeted at the teachers delivering the material and would cover content, how to use the manual and other resources, with role plays of small sections to explore engaging with the material.

How many sessions should the intervention have? And, how long should each session be?

The number of sessions in previous universal interventions has varied from 'single shots' (Irving & Berel, 2001; Withers et al., 2002) to whole school programmes delivered in tens of sessions over many months (Austin et al., 2005; Haines, Neumark-Sztainer, Perry, et al., 2006; Stock et al., 2007). Typical multisession interventions include between three and eight sessions (e.g. Neumark-Sztainer et al., 2000; Richardson & Paxton, 2010; Wade et al., 2003; Wilksch & Wade, 2009). Session length is almost universally between 50 minutes and two hours, and sessions tend to be delivered at a rate of once a week.

It is difficult to untangle the importance of the ‘dose’ of interventions from the content because, almost without exception, different intensities of programme delivery have not been tested against each other. (An exception is reported in Watson & Vaughn, 2006, where four sessions of media literacy marginally outperformed one session.) However, rudimentary conclusions can be drawn from the meta-analysis of controlled eating disorder prevention trials by Stice and Shaw (2004), in which greater effect sizes were reported for multisession interventions. Theoretically, this makes sense as multiple sessions give participants the opportunity to reflect on material, to conduct ‘homework’ between sessions and to cover a larger amount of content.

In terms of the contextual considerations for session number and length, school staff advised that sessions should correspond to one lesson length, which is typically 50 – 60 minutes. It was also clear that some flexibility would be necessary in order to accommodate the different lesson lengths between schools. Although school staff were keen on the inclusion of eating disorder prevention material in the curriculum, time constraints were highlighted. Six sessions was proposed as a potential limit as, if delivered weekly, this could be completed within a typical half term period.

Drawing these factors together, we decided to develop six sessions, each of which could fit into a weekly lesson of roughly 50 minutes. This was in line with staff recommendations as well as being typical of previous empirical work and should balance the potential benefits of higher doses without the intervention being impractically long.

Summary

This chapter has outlined the process of intervention development, combining empirical and theoretical considerations with contextual input from members of the community who would be affected by the intervention. The aim was to create a programme that would be relevant and appropriate for the environment in which it was to be delivered and to improve adherence to the project through fully engaging school staff in the process.

Overall structure

To summarize, the intervention, *Me, You & Us*, consisted of six, 50 minute lessons to be delivered in mixed gender classrooms by school teachers, who were given a two hour

training session. The material for the intervention was contained in a Facilitator's Guide, which was linked with Student Workbooks for each activity. Teachers were also provided with Powerpoint slides and additional materials that would be needed to complete the activities (e.g. stickers, magazines). The sessions included the following content:

Lessons 1 & 2: Media literacy

The aim of the first two lessons was to help participants to critique media presentations of ideal beauty through exploring how conceptions of beauty have varied over time and place, what messages are hidden in media images, and how to take action.

Lessons 3 & 4: Fat talking

Lessons three and four focused on perceived peer pressure towards thinness, introducing the concept of fat talking, and examining why we might fat talk as well as possible consequences. The lessons went on to challenge negative appearance-related commentary through exploring the giving and receiving of compliments.

Lesson 5 & 6: Personal strengths and wellbeing

Finally, the remaining lessons focused on tackling negative affect and low self-esteem through learning about personal strengths and how to use them. Simple exercises to promote wellbeing were explored in the final lesson, including writing a gratitude letter and carrying out small acts of kindness.

The final versions of the Facilitator's Guide and Student Workbook are available in Appendices D & E. The following chapter describes the testing of this intervention through clustered randomised controlled trial.

**Chapter 5: A Cluster Randomised Controlled Trial Assessing
The Efficacy Of *Me, You & Us* In Reducing Risk Factors For
Eating Disorders In Secondary School Students**

Introduction

Prevention efforts in eating disorders have focused on selective interventions, due to the finding that effect sizes are larger in those interventions working with individuals that are deemed at risk for eating pathology (Stice & Shaw, 2004; Stice, Shaw, et al., 2007). However, it was suggested in Chapter 1 that presenting universal and selective interventions as mutually exclusive possibilities is not a fruitful approach. Instead, a mosaic of complementary interventions stemming from the question of *what works for whom* was proposed.

As discussed in detail in Chapter 1, universal prevention programmes for eating disorders have promise for a number of theoretical and pragmatic reasons. Theoretically, working with an entire peer group offers the opportunity to tackle elements of the social environment that are known to be risk factors for eating disorders, such as perceived pressure towards thinness (e.g. Keery et al., 2004; Stice, 2001). Practically, universal interventions provide an alternative to some of the limitations of selective interventions, including: managing stigma; the problems of relying on self-selection for recruitment; and the likelihood that not all those that are at risk will be willing to take part.

Within this framework, teachers may play a critical role in the universal prevention of eating disorders. Having access to almost all of the adolescent population, secondary school teachers are in a unique position to deliver material widely and with minimal costs. The same cannot be said of trained psychologists. This factor is essential for the success of universal intervention: the small effect sizes typically produced by universal interventions can only gain the potential for clinical significance when spread across a large proportion of the population.

In determining what works for whom, randomised controlled trials provide a gold standard of evidence. The random allocation of participants to intervention and control arms provides evidence about the whether the intervention causes any outcomes observed. This is because, when randomisation is achieved, all factors (observed and unobserved) other than receipt of the intervention are distributed evenly between the two groups. Any changes observed in the intervention group can therefore be attributed to the intervention alone.

Conducting randomised controlled trials within the school setting can, however, be challenging. Regardless of the nature of those delivering content, random allocation of individuals or classes to trial arms within the confines of the school timetable is problematic. As such, in many evaluations of school-based eating disorder prevention programmes there are either no control groups (Kater et al., 2000; Wilksch et al., 2006), or allocation to a control group is not at random (Canetti et al., 2009; Haines, Neumark-Sztainer, Perry, et al., 2006; McVey, Lieberman, Voorberg, Wardrope, & Blackmore, 2003; Paxton, 1993; Piran et al., 2000; Raich et al., 2010; Richardson & Paxton, 2010; Steiner-Adair et al., 2002; Stock et al., 2007). These research designs limit the internal validity of the trials.

Given the difficulties of achieving randomisation in the school setting, very few teacher-delivered interventions have been evaluated by means of randomised controlled trial (Favaro et al., 2005; Ghaderi et al., 2005; Kater, Rohwer, & Londre, 2002; O'Dea & Abraham, 2000; Phelps, Sapia, Nathanson, & Nelson, 2000; Wade et al., 2003). In addition, several of these trials have small sample sizes and so are likely to be underpowered (Favaro et al., 2005; Ghaderi et al., 2005; Wade et al., 2003). The current state of evidence regarding the efficacy of teacher-delivered interventions for eating disorders in schools is therefore very poor. Given the potential scope for these universal interventions, and the current policy interest in body image interventions for schools (All Parliamentary Group on Body Image, 2012), this lack of high quality evidence is problematic.

Aims and hypotheses

The aims of this study were to assess the efficacy, feasibility and acceptability of *Me, You & Us*, a teacher-delivered universal prevention programme for eating disorders. The following hypotheses were generated:

Main hypothesis:

H₁: Students receiving the intervention will show significant improvements in body esteem, internalisation, peer support, appearance conversations, depressive symptoms, self-esteem and eating pathology compared to students in the control group at post-intervention and at a three month follow up.

Subsidiary hypotheses:

H₂: Students will find the material in the intervention acceptable, in that they will report enjoying the lessons and perceive them as useful.

H₃: It will be feasible to train usual secondary school teachers to deliver an eating disorder prevention programme from a manual and student workbook with high fidelity.

Methods

This trial is reported in accordance with recommendations by the CONSORT group (Boutron, Moher, Altman, Schulz, & Ravaud, 2008; Campbell, Elbourne, & Altman, 2004; Schulz, Altman, & Moher, 2010). Permission to conduct the trial was granted by King's College London Research Ethics Committee, Psychiatry, Nursing & Midwifery Research Ethics Subcommittee (REF PNM 10 11-96). A copy of the confirmation letter for this approval is given in Appendix A.2.

Trial design

The study used a cluster randomised controlled trial design. Existing classes of secondary school students were allocated by unrestricted randomization to an intervention group or to a curriculum-as-usual control group. Participants were assessed with written questionnaire measures at pre-intervention, post-intervention and a three month follow up.

Participants*Eligibility criteria*

Participants were adolescents in year 8 or year 9 in a secondary school in the United Kingdom. Secondary schools provided the point of access to participants. Schools were eligible to take part if:

- The school was based in the United Kingdom.
- The school had classes of students in years 8 and/or 9.
- The school had a sufficiently flexible timetable to manage random allocation of lessons to participating classes.

Participants were eligible to take part if:

- They attended year 8 or year 9 in a participating secondary school
- They were deemed by a member of school staff (head teacher, form teacher, school nurse) to have sufficient English language reading ability to be able to comprehend consent procedures and manage written questionnaires.

Settings and location of data collection

All data were collected within the school setting. School staff administered questionnaires within regular school hours, based on protocols provided by the researcher.

Trial arms

Intervention condition: Me, You & Us

Staff training

Me, You & Us was designed to be delivered by students' usual teachers. The teachers who would usually be delivering the allocated lesson slots were invited to take part in training on how to deliver the intervention. All teachers agreed. Training took place at participating schools and consisted of a standardised two-hour session with all involved teachers, which covered basic psycho-education about eating disorders, a review of how to use the *Me, You & Us* manual, lesson content, and time for discussion of challenging elements of the programme. Staff were encouraged to engage with the manual prior to delivering a session, to read the background material and to familiarise themselves with the exercises.

In addition to learning about intervention content, the nature of the study design and evaluation methodology was explained. Teachers discussed the reasoning behind using a cluster randomised controlled trial, the importance of delivering the material as intended and in particular ethical requirements, such as obtaining fully informed consent from all students' parents.

Delivery

The intervention consisted of six 50 minute lessons delivered in normal classroom time. As shown in Table 5.1, the six lessons focused on three topics: media literacy; fat

talking and positive friendship interactions; and happiness and wellbeing. The Facilitators' Guide and Student Workbook for this intervention are included in Appendices D & E.

Table 5.1: Brief outline of Me, You & Us lesson content administered to the intervention group.

Lesson	Content
Media Literacy I	What is beauty? How has beauty been understood through history and around the world? Where do our ideas of beauty come from? What is the affect of media images on body confidence?
Media Literacy II	Learning to critically analyse adverts and media images. Writing a campaign letter against unrealistic images to an MP, the Advertising Standards Agency or the editor of a magazine.
Fat Talk I	What is fat talking? What are the effects of fat talking? Why do we fat talk? Group discussion regarding the importance of appearances for happiness.
Fat Talk II	What makes a genuine compliment? Learning to give and receive compliments from others. Poster making session against fat talking.
Personal Strengths	What is a personal strength? Knowing your own strengths and recognising them in others. Learning to exercise your personal strengths.
Happiness	What makes me happy? What went well today? Performing small acts of kindness. Showing gratitude to others.

Control condition: curriculum-as-usual

Participants in the control group received their curriculum-as-usual. The actual content of this was not determined by the trial but consisted of whatever had been planned by teachers for that period.

Outcomes

Demographic information, eating disorder screening, primary and secondary outcomes were obtained from individual students by means of written questionnaires. Demographic information and eating disorder screening was obtained one week prior to the intervention period ('pre-intervention', T_1). All primary and secondary outcome measures were administered at pre-intervention, one week following the intervention period ('post-intervention', T_2) and at approximately three months following the intervention period ('follow up', T_3).

Demographic information

Ethnicity was obtained through the standard ethnicity questionnaire for the United Kingdom (Department of Health) in which participants choose between seven options: *White, Mixed, Asian or Asian British, Black or Black British, Chinese or Other Ethnic Group* or *Not Stated*. For this study the following categories were used: *Asian British* was collapsed into *Asian*, *Black British* was collapsed into *Black*, and *Mixed* and *Chinese* were collapsed into *Other*. This resulted in four ethnic categories: *White, Black, Asian*, and *Other*. Participants were also asked for the education levels of their mother and father based on three categories from primary school only to university/professional degree. Combined parental education level was computed by taking the highest education level reported for either parent.

Eating disorder screening

In order to assess the preventative effects of the intervention, all participants were screened for potential eating disorders at baseline using the *Eating Disorder Diagnostic Scale* (EDDS, Stice, Telch, & Rizvi, 2000), a 22 item self-report measure designed to identify DSM-IV diagnostic criteria for anorexia nervosa, bulimia nervosa and binge eating disorder.¹⁸ Items involve a combination of Likert scales, yes-no items, frequency questions and self-reported weight and height measurements.

¹⁸ These cases are referred to as potential eating disorder cases because diagnosis is based on self-report rather than structured clinical interview.

The EDDS has been used extensively with adolescent samples and has been shown to have good one-week test-retest reliability, with kappa coefficients ranging from 0.71 to 0.95 (Stice, Telch, et al., 2000). Identification of individuals meeting diagnostic criteria for eating disorders has excellent agreement with ‘gold standard’ diagnoses obtained from the *Eating Disorder Examination Interview* ($\kappa = 0.74 - 0.93$) (Stice, Fisher, & Martinez, 2004; Stice, Telch, et al., 2000). As healthy BMI estimates vary across childhood, CDC BMI-for-age charts (Centers for Disease Control and Prevention, 2009) were used to determine weight status based on participants’ age to the nearest 6 months. In line with CDC recommendations for defined underweight, the underweight criterion used for anorexia nervosa diagnoses was defined as below the 5th percentile BMI-for-age.¹⁹

Primary outcome

Body esteem

Body esteem was assessed using the *Body Esteem Scale for Adolescents and Adults* (BES), a 23 item self-report measure in which participants have to rate the frequency with which they agree with statements about confidence with their appearance on a five point Likert scale (Mendelson & White, 1997). There are three subscales: *Appearance* (“I like what I look like in pictures”), *Weight* (“I feel I weigh the right amount for my height”) and *Attribution* (“Other people consider me good looking”). In this study the total score was used to capture a broad concept of body esteem, with higher scores representing greater body esteem.

The BES is suitable for use with adolescents as young as 12 years (Mendelson et al., 2001; Mendelson & White, 1997). Mendelson & White (1997) report that subscales in the BES show good internal consistency ($\alpha = 0.84 - 0.94$) and that the scale has good three month test-retest reliability when administered to university students ($r = 0.83 - 0.92$). In this sample the value of alpha for the internal consistency was $\alpha = .94$. The BES has been used extensively as a primary outcome for eating disorder prevention

¹⁹ Recommendations for DSM-5 criteria have called for the use of a 10th percentile BMI-for-age cut off for adolescent underweight (Hebebrand & Bulik, 2011). Analyses were also conducted with this criterion. An additional five participants met the criterion for underweight at 10th percentile, but none of these met the remaining criteria for anorexia nervosa meaning that all results remained as reported.

programmes with adolescents (Cousineau et al., 2010; McVey, Lieberman, Voorberg, Wardrobe, & Blackmore, 2003; Steiner-Adair et al., 2002).

Secondary outcomes

Eating pathology

In addition to being used to screen for potential cases of eating disorders at baseline, the *Eating Disorder Diagnostic Scale* (EDDS, Stice, Telch, et al., 2000) was used to provide binary outcome data on whether participants experienced binge eating, vomiting, laxative/diuretic use, meal skipping, or excessive exercise to prevent weight gain at least once a week in the past three months. A binary composite score ('compensatory behaviours') was also computed in which participants received a score if they reported any of these four compensatory behaviours.

Thin-ideal internalisation

The extent to which participants adhered to the media portrayal of the ideals of thinness was assessed using the *General Internalisation* subscale of the *Sociocultural Attitudes Towards Appearances Scale – 3* (SATAQ-3, Thompson, Van den Berg, Roehrig, Guarda, & Heinberg, 2004). The *General Internalisation* subscale consists of nine items about appearances and the media (TV, magazines, films), such as "I would like my body to look like the models who appear in magazines", with which participants have to agree or disagree on a five point Likert scale. Higher scores represented greater thin-ideal internalisation.

Psychometric assessment of the SATAQ-3 has been conducted with university students (Thompson et al., 2004). Internal consistency of the *General Internalisation* subscale is excellent ($\alpha = 0.92 - 0.96$) as is the convergent validity with associated scales from the Eating Disorder Inventory ($r = 0.32 - 0.57$). Since its development the SATAQ-3 has been used extensively with adolescent samples (e.g. Heinicke et al., 2007; Wilksch et al., 2006). In this sample the internal consistency was $\alpha = 0.92$.

Appearance conversations with friends

The frequency with which 14 on the topic of appearances was measured using the *Appearance Conversations with Friends Scale* (ACFS, Jones et al., 2004). The five items are designed to assess "how often students talked with their friends about expectations

for their bodies and for appearance enhancements” (Jones et al., 2004, p. 329) and take the form of statements such as “my friends and I talk about the size and shape of our bodies” with which participants have to agree or disagree on a five point Likert scale. Higher scores represent more frequent appearance conversations. The ACFS was designed for use with adolescents and has been used repeatedly in studies of sociocultural influences on eating problems (Jones & Crawford, 2006; Thompson et al., 2007). Cronbach’s alpha for internal consistency of the items for girls is satisfactory at 0.85 (Jones et al., 2004). In this sample the internal consistency was similar: $\alpha = 0.88$.

Social support

Perceived social support was measured using the *Friend* subscale of the *Multidimensional Scale of Perceived Social Support* (MSPSS, Zimet, Dahlem, Zimet, & Farley, 1988). This four item scale assesses perceived support from friends through responses on a seven-point Likert scale to items such as “My friends really try to help me”. Higher scores represented greater perceived social support. The MSPSS has been used widely with adolescents (e.g. Cauty-Mitchell & Zimet, 2000; Cheng & Chan, 2004) and has good internal consistency ($\alpha = .91$, Dahlem, Zimet, & Walker, 1991), test-retest reliability (Zimet et al., 1988) and established construct validity by means of correlations with interview measures of relationship quality and related measures of social support (Cauty-Mitchell & Zimet, 2000; Corkey & Zimet, 1987). In this sample the internal consistency was $\alpha = 0.90$.

Depressive symptoms

Depressive symptoms were assessed using the *Depression* subscale of the short version of the *Depression, Anxiety and Stress Scale* (DASS-21, Lovibond & Lovibond, 1995). The DASS-21 *Depression Subscale* is a seven item scale in which participants are required to state how often particular statements, for example “I felt that I had nothing to look forward to”, applied to them over the past week. Higher scores represent greater depressive symptoms. In adult samples the DASS-21 has been shown to have strong psychometric properties: in large community samples the internal consistency of subscale ranges from 0.82 to 0.93 (Henry & Crawford, 2005) and the DASS-21 shows good convergent and discriminate validities (Antony, Cox, Enns, Bieling, & Swinson, 1998; Henry & Crawford, 2005).

The DASS-21 has been used in previous research with adolescent samples (Ricciardelli & McCabe, 2001; Stanford & Jones, 2009). Although there has been some debate about the factor structure of the DASS-21 in adolescent samples, recent large scale studies suggest a three factor solution matching the three subscales (Depression, Anxiety and Stress) for adults (Szabó, 2010). In this sample the internal consistency of the *Depression* subscale was $\alpha = 0.88$.

Self-esteem

A single item – “How positive do you feel about yourself?” - was used to assess self-esteem. Participants were required to respond on a five point Likert scale from ‘Not at all positive’ to ‘Very positive’. Higher scores represent higher self-esteem.

Acceptability

Acceptability of the programme was assessed using two five point Likert scales. The first asked: “How much did you enjoy Me, You & Us?”, and the second asked: “How useful did you find Me, You & Us?”. The Likert scales ranged from ‘Not at all’ to ‘Very much’. Higher scores represent greater acceptability.

Fidelity to intervention guide

Fidelity of delivery of the intervention was assessed through lesson observations. Two lessons were observed in each school and these were rated regarding adherence to planned content. Each activity in the Facilitator’s Guide (see Appendix D) was rated as being ‘completed’, or ‘not completed’. Free text was used to note whether any additional material was covered.

Sample size calculation

Sample size calculation for cluster randomised controlled trial must be increased by an inflation factor, or design effect (D_{eff}) of:

$$D_{eff} = 1 + (m - 1)ICC$$

where m is the average cluster size and ICC is the intraclass correlation. Few cluster trials report values of ICC meaning that sample size calculation is challenging for new trials. The inflation factor for this trial was based on generic estimates of small ICC

($ICC = 0.05$) (Hox, 2002) and average class sizes of 28 students. This resulted in an estimated inflation factor of 2.35.

Sample size calculations were conducted using G*Power 3 (Faul, Erdfelder, Lang, & Buchner, 2007). We assumed a small effect size ($d = 0.20$), based on previous similar trials (Wilksch & Wade, 2009), and set power at 0.80. Assuming a 1:1 ratio between the groups, the basic sample size requirement would be 394 participants per group, which increased to 926 per group when the estimated inflation factor was taken into account.

Randomisation

For pragmatic considerations of delivery within the school setting, random allocation was carried out at the level of existing classes rather than for individual students. An online random number generator (Haahr, 2012) was used to create a random allocation sequence. Randomisation was unrestricted. As classes were enrolled into the trial, the random allocation was generated which assigned the class to intervention condition or control condition. One researcher (HS) carried out the enrolment of classes, the generation of the random allocation sequence and the allocation of classes to conditions.

Blinding

Given the nature of the trial design, with a curriculum-as-usual control, it was not possible to blind school staff or student participants to their allocated condition. Researchers were also unblinded. However, risk of bias from lack of researcher blinding was low, as the researchers did not conduct assessments.

Statistical analyses

All analyses were conducted using STATA, Version 12 (StataCorp., 2011). The primary outcome for the trial was body esteem. The secondary outcomes were eating pathology (binge eating and use of compensatory behaviours), thin-ideal internalisation, appearance conversations with friends, peer support, depression and self-esteem. In order to account for the hierarchical clustered and longitudinal design of this trial (individuals over time, within classes within schools), group comparisons for primary and secondary outcomes were assessed using linear and logistic mixed models. These allow for a combination of fixed and random effects to be included in a model. Inclusion

of random effects means that the extent of non-independence of observations within clusters (schools, classes), and between different observations of the same individual over time, can be estimated and adjusted for (West, Welch, & Galecki, 2007).

Linear mixed models have a further major advantage over other statistical methods for clustered, longitudinal data in their ability to manage missing data. This is a significant attribute in longitudinal studies where there is likely to be considerable missing data. Estimates in linear mixed models may be provided by maximum likelihood methods, in which the most probable population parameters are estimated based on the data observed (West et al., 2007). This technique makes use of all available data, including cases where one or more observations are missing. Linear mixed models are robust to missing data that are *missing at random* (West et al., 2007). Data are *missing at random* when the probability of being missing does not depend on unobserved data (Schafer & Graham, 2002). If probability of being missing is related to observed data, these are included in the model (West et al., 2007). Therefore, if we can assume that data are *missing at random* then linear mixed models provide an efficient approach for longitudinal data that makes use of as much available data as is possible.

For each of the primary and secondary outcomes, mixed effects models included fixed effects for outcome, group, time point and covariates (observed values that were associated with data missing at random), and random intercepts for the school, group and participant ID. For continuous outcomes linear mixed effects models were used, and for binary outcomes logistic random effects models were used. The extent to which inclusion of these random effects significantly improved the fit of the model was assessed using the likelihood ratio test (LR). Following model development, model assumptions were checked. Residuals were checked for normality, constant variance and outliers through observation of residual plots. Unless otherwise stated, alpha values were set to 0.05, and all p -values are reported for two-tailed tests.

Effect sizes (Cohen's d) for continuous outcomes were calculated by computing standardised differences in the estimated marginal means for the intervention and control group at post-intervention and three month follow up, using the following formula:

$$d = \frac{(x_1 - x_2)}{s}$$

where x_1 was the intervention group adjusted mean, x_2 was the control group adjusted mean and s was the standard deviation for the whole sample at baseline. As any baseline differences were controlled for in the model, differences in the estimated marginal means at post-intervention represented effects of the intervention.

In addition to the statistical significance, the extent of reliable and clinical significant change shown by individual participants was also examined. Based on the strategy presented by Jacobson and Truax (1991), the extent of reliable and clinically significant change was calculated as follows. Individual change between pre-intervention and T₂ or T₃ was deemed reliable – that is, was greater than expected taking into account the fluctuations imprecise scales – if it exceeded the reliable change index (RC) defined by:

$$RC = 1.96 * SD_{norm} \sqrt{2\sqrt{1-r}}$$

where SD_{norm} was the standard deviation of the measure in the normal population, and r was the reliability of the measure, in this case defined as the internal consistency (Cronbach's alpha).

The clinical significance of the change was based on individuals moving across a cut off score defined as a midway between the distribution of the measure in the normal population and in the clinical population (Jacobson & Truax, 1991). Participants showed clinically significant improvements, therefore, if they moved from being above the clinical cut off to below the clinical cut off during the trial. The cut off (CS) was calculated as:

$$CS = \frac{(M_{norm} * SD_{clin}) + (M_{clin} * SD_{norm})}{SD_{clin} + SD_{norm}}$$

where M_{norm} and SD_{norm} was the mean and standard deviation for the normal (non-clinical) population, and M_{clin} and SD_{clin} was the mean and standard deviation for the clinical population.

As the procedures for reliable and clinically significant change are usually applied to treatment trials, the majority of participants usually commence the study within the clinical range and can therefore make clinically significant improvement by passing into the normal range. However, in universal prevention trials this is not the case, as the majority of participants will fall into the normal range. The analyses for this trial were therefore divided into two groups. First, I assessed the efficacy of the intervention through calculating reliable and clinically significant improvement scores for those participants initially in the clinical range (scoring above the cut off defined above). Second, I assessed reliable and clinically significant worsening in those participants initially in the normal range, and used this to assess whether there was any evidence of harms from the intervention.

Results

Data preparation

Prior to beginning analyses, scales were assessed for impossible values and for normal distribution. Impossible values resulting from data entry errors were checked against paper questionnaires and rectified. As the range for self-reported height and weight was much larger than that expected (height: 110cm – 190cm; weight: 24kg – 152kg), self-reported height and weight were considered to be missing if participants reported values that were above the 95th percentile for a 15 year old or below the 5th percentile for an 11 year old, as these were deemed to be highly unlikely to be accurate. Percentiles for weight and height were drawn from the CDC clinical growth charts (Centers for Disease Control and Prevention, 2009). This resulted in: 29 values for height and 10 values for weight being removed at T₁; 18 values for height and two values for weight being removed at T₂; and 31 values for height and three values for weight being removed at T₃.

Continuous variables were assessed for normal distribution using visual inspection of histograms as formal tests of normality are prone to Type I errors with large sample sizes (Field, 2009). All variables were normally distributed apart from the depression score, which was severely positively skewed, and the peer support score, which was severely negatively skewed. In non-clinical samples, a positive skew in the DASS-21 is to be expected (Henry & Crawford, 2005). Attempts to normalise these distributions

through transformations were unsuccessful. Given the extent of the skew, it was considered advisable to dichotomise these outcomes for use in the main analyses.²⁰ Although dichotomising does result in a loss of information, severely skewed data tend to produce non-normal residuals in linear mixed models, meaning that a core assumption of the test is violated. Dichotomising these variables allowed these measures to be used as outcomes in logistic mixed effects models, a similar model to that used for the primary outcomes, but which can provide estimations for binary outcomes.

Where norms for cut off scores were available for scales, these were used to inform the position of the dichotomising. For the DASS-21, a score of 14 or above has been shown to indicate moderate depressive symptoms (Lovibond & Lovibond, 1995). This score was therefore used to dichotomise the responses, resulting in 15 percent of participants being classified as Moderate/Severe Depressive Symptoms, and 85 percent of participants being classified as No/Mild Depression Symptoms. No cut off scores exist for the MSPSS (peer support scale) so median splits were used for this measure.

Table 5.2: Correlation matrix for continuous variables at T₁.

	Age	BMI	Body esteem	Internalisation	Appearance conversations	Self-esteem
Age	.					
BMI	0.11	.				
Body esteem	-0.06	-0.31*	.			
Internalisation	-0.02	0.15*	-0.53*	.		
Appearance conversations	-0.01	0.13*	-0.33*	0.49*	.	
Self-esteem	-0.15*	-0.18*	0.67*	-0.37*	-0.27*	.

Note: * = $p < 0.05$

²⁰ Dichotomized versions of the variables were only used in the main analyses where non-parametric alternatives are not available. In preliminary analyses, such as the randomization check, there are non-parametric tests available that do not rely on normal distribution (e.g. Wilcoxon Rank Sum test). In these instances, the original variables were used with these non-parametric tests.

The relationships between the continuous variables are shown in Table 5.2, above. Multiple significant associations in the expected directions were found. For example, greater body esteem was associated with lower internalisation of the thin-ideal, fewer appearance conversations and higher self-esteem. Age was largely unrelated to the other variables, although older participants had lower self-esteem. Those participants with higher BMIs had lower body esteem, higher internalisation, lower self-esteem and reported more frequent appearance conversations.

Participant flow

Flow of participants through the study is shown in the CONSORT flow diagram, Figure 5.1. One hundred and twelve secondary schools in London and the surrounding area were sent a letter outlining the project and inviting them to take part.

Four schools responded to these letters seeking further information. Each school was visited, informing them further about the nature of the project and requirements for taking part. Following these discussions, head teachers of three schools provided written permission for students to take part in the study. The primary reason for not wishing to participate was being wary of using material that had not been used before.

The three schools provided 16 classes eligible for enrolment. There were no additional inclusion criteria for classes so these 16 classes were randomly allocated to intervention or control. The outcome of randomisation was nine classes in the intervention group and seven classes in the control group.

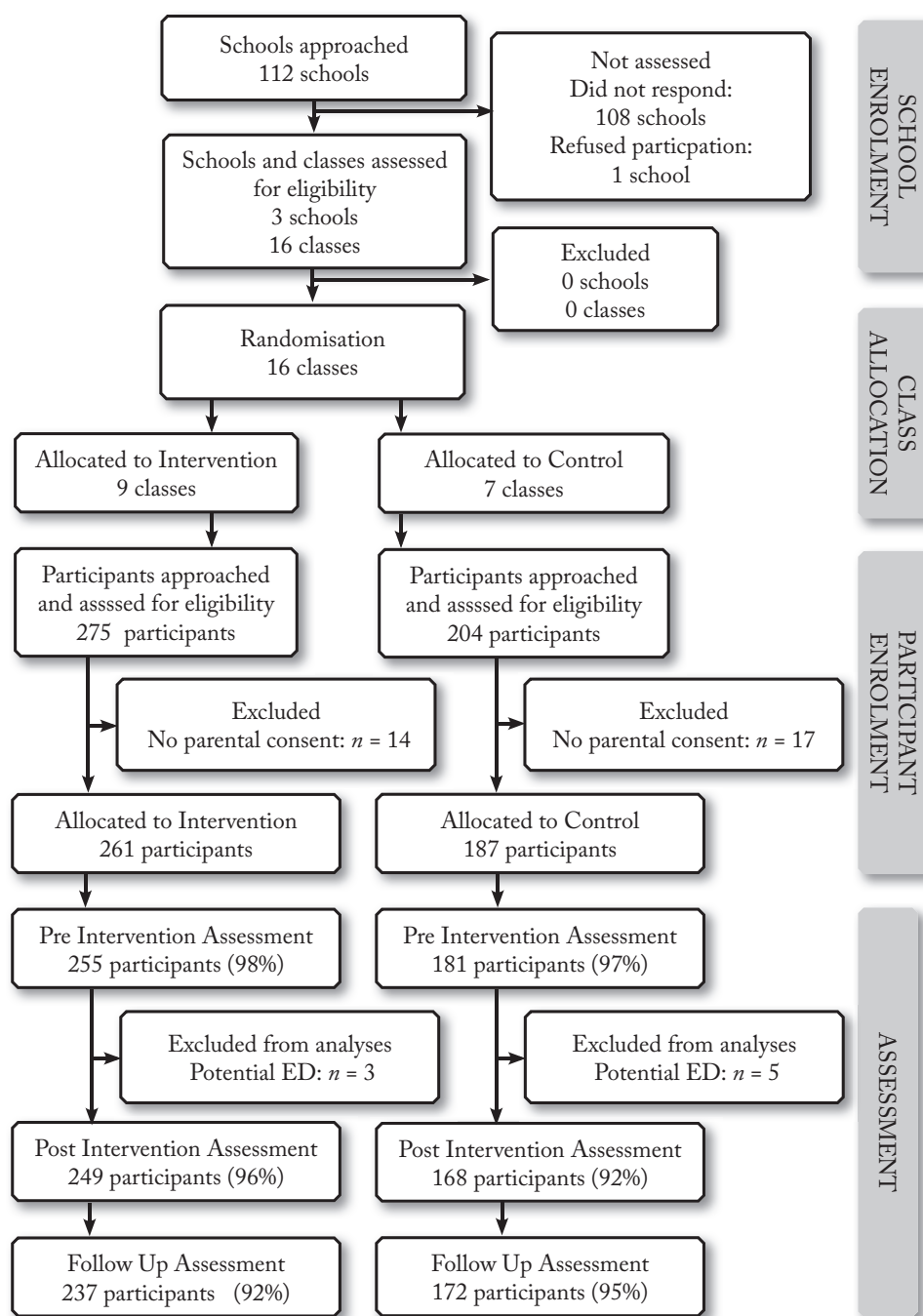


Figure 5.1: CONSORT flow diagram of participants through the trial.

Following class allocation information sheets explaining the nature of the research were given to all students' parents/carers ($n = 479$). Opt-in informed consent was gained from parents meaning that all parents had to return a signed consent form to the school for their child to be involved in the research. As shown in Figure 5.1, 31 parents (6%) either refused consent or failed to return a completed consent form. These students were excluded from the trial.

Students with parental consent ($n = 446$) were then provided with an information sheet about the study, which explained what they would have to do and how their data would be used. Students were required to sign an assent form to confirm they were happy to participate in the trial. This resulted in 261 participants in the intervention group and 187 participants in the control group.

In order to assess the preventative effects of the intervention, potential cases of eating disorders at pre-intervention, as determined by the EDDS, were removed from the analyses. There were two potential cases of anorexia nervosa, six potential cases of bulimia nervosa, and no potential cases of binge eating disorder. As the EDDS has not been validated for the identification of EDNOS (other than binge eating disorder) (Stice, Telch, et al., 2000), it was not possible to identify potential cases of EDNOS.²¹ These eight potential cases of eating disorders were removed from all further analyses.

²¹ Although it would have been possible to build a possible identification of EDNOS from the EDDS items, this was deemed unwise, as the measure has not been validated for this purpose. As such the sensitivity and specificity of the measure would be unknown. If the detection of EDNOS had low sensitivity, we would risk excluding individuals who were at high-risk, but did not meet clinical criteria, and would therefore unnecessarily reduce the variability in the available data.

Losses, exclusions and missing data

Missed time points

No students withdrew from the trial. However, as data collection occurred during the regular school day absence from school on the day of collection resulted in at least one time point of missing data for 58 participants (13%). Seven participants missed T_1 ; seventeen participants missed T_2 ; twenty-six participants missed T_3 ; three participants missed T_1 and T_2 ; two participants missed T_1 and T_3 ; and three participants missed T_2 and T_3 .

In order to measure whether any of the assessed variables were associated with missing time points, a series of chi-squared tests, t -tests, and Wilcoxon rank sum tests were performed. In order to keep multiple testing to a minimum, available T_1 values of variables were compared between those that missed T_2 or T_3 ($n = 46$) and those that did not ($n = 394$). Bonferroni adjustments were applied to the alpha level to account for multiple testing ($\alpha = 0.004$ [$0.05/13$]). Results are shown in Table 5.3 (below). Missing a time point at T_2 or T_3 was not associated with ethnicity, parental education or any of the primary or secondary outcomes. However, missing a time point at T_2 or T_3 was associated with school ($\chi^2(2) = 13.74$, $p = 0.001$). School C had fewer cases of missing time points than Schools A or B. School was therefore included as a covariate in all mixed models.

Table 5.3: Comparison of baseline characteristics between those who were missing time points at T_2 or T_3 and those who were present at time points T_2 or T_3 .

		Present at $T_{2 3}$ n (%)	Missing at $T_{2 3}$ n (%)	χ^2	p
School	A	83 (84)	16 (16)	13.74	0.001
	B	173 (87)	26 (13)		
	C	138 (97)	4 (3)		
Ethnicity	White	201 (95)	11 (5)	2.50	0.48
	Black	70 (93)	5 (6)		
	Asian	67 (93)	5 (7)		
	Other	48 (89)	6 (11)		
Parental education	Primary	2 (100)	0 (0)	0.31	0.10 ⁺
	Secondary	87 (91)	9 (9)		
	University	285 (91)	29 (9)		
Binge eating	Yes	25 (86)	4 (14)	2.12	0.35
	No	339 (89)	41 (11)		
Compensatory behaviours	Yes	139 (89)	17 (11)	0.47	0.49
	No	239 (89)	29 (11)		
		($M[SD]$) $n = 394$	($M[SD]$) $n = 46$	t	p
Age		13.02 (0.57)	13.16 (0.57)	-1.65	0.10
BMI		18.47 (3.25)	17.44 (2.67)	1.53	0.13
Body esteem		2.29 (0.74)	2.30 (0.68)	-0.15	0.88
Internalisation of thin-ideals		22.44 (9.21)	20.18 (8.47)	1.56	0.12
Appearance conversations		11.78 (4.58)	11.36 (4.45)	0.57	0.56
Self-esteem		3.44 (0.94)	3.63 (0.95)	-1.30	0.20
		(Median [IQR]) $n = 394$	(Median [IQR]) $n = 46$	z	p
Peer support		5.75 (5.00 – 6.50)	5.50 (4.75 – 6.25)	1.07	0.28
Depression		2.00 (0.00 – 8.00)	2.00 (0.00 – 10.00)	-0.14	0.89

Notes: n varies slightly due to missing data. ⁺ Given the inaccuracy of Chi-squared tests with low expected cell counts, p value is based on Fisher's exact test.

Incomplete questionnaires: Extent of missing data

In addition to participants missing whole time points there were missing data from incomplete questionnaires. If scales were missing a single item, the mean of the available items on the questionnaire were used to compute the total score. If two or more items were missing from a scale the total scale score was considered to be missing. As shown in Table 5.4, the number of missing data from incomplete questionnaires ranged from <1 percent to 17 percent. Individuals who did not complete the time point were excluded, meaning that the table represents only data missing because of incomplete questionnaires.

Table 5.4: Number of missing data from incomplete questionnaires, by scale and time.

Outcome	Number missing		
	T ₁ , <i>n</i> = 428 <i>n</i> (%)	T ₂ , <i>n</i> = 417 <i>n</i> (%)	T ₃ , <i>n</i> = 409 <i>n</i> (%)
Body esteem	21 (5)	45 (11)	24 (6)
Binge eating	19 (4)	29 (7)	5 (1)
Compensatory behaviours	4 (1)	22 (7)	6 (1)
Internalisation of thin-ideals	28 (7)	53 (13)	26 (6)
Appearance conversations	28 (7)	71 (17)	27 (7)
Peer support	29 (7)	57 (14)	29 (7)
Depression	39 (9)	51 (12)	23 (6)
Self-esteem	2 (<1)	10 (2)	4 (1)

Incomplete questionnaires associated with the primary outcome

In order to assess whether incomplete questionnaires were associated with the primary outcome, a series of chi-squared tests, Wilcoxon rank sum tests and t -tests were performed. Again, in order to minimise multiple testing, available T_1 values of variables were compared between those that completed T_2 or T_3 body esteem scales ($n = 332$) and those that did not ($n = 50$). In order to assess incomplete questionnaires (rather than missing time points, which are addressed above), only those participants who completed all time points were included in these analyses. Again, alpha values were adjusted using the Bonferroni correction ($\alpha = 0.004$).

As shown in Table 5.5 (below), incomplete questionnaires for the primary outcome, body esteem, were associated with school ($\chi^2(2) = 38.17, p < 0.001$), ethnicity ($\chi^2(3) = 13.51, p = 0.004$) and age ($t(388) = -4.49, p < 0.001$). School, ethnicity and age were therefore included as covariates in the model for the primary outcome. Incomplete questionnaires were also associated with appearance conversations ($t(356) = -2.90, p = 0.004$), in that those reporting more frequent appearance conversations were less likely to complete the body esteem measure at follow up. Appearance conversations were therefore included as a covariate in the model for the primary outcome.

Table 5.5: Comparison of baseline characteristics between those who were and were not missing values for body esteem at T_2 or T_3 .

		Not missing body esteem at $T_{2 3}$ n (%)	Missing body esteem at $T_{2 3}$ n (%)	χ^2	p
School	A	73 (94)	5 (6)	38.17	<0.001
	B	126 (75)	42 (25)		
	C	133 (98)	3 (2)		
Ethnicity	White	183 (92)	16 (8)	13.51	0.004
	Black	48 (76)	15 (24)		
	Asian	59 (88)	8 (12)		
	Other	38 (79)	10 (21)		
Parental education	Primary	2 (100)	0 (0)	3.80	0.13 ⁺
	Secondary	80 (93)	6 (7)		
	University	238 (87)	41 (13)		
Binge eating	Yes	26 (81)	6 (19)	0.95	0.33
	No	297 (87)	43 (13)		
Compensatory behaviours	Yes	122 (83)	25 (17)	2.99	0.08
	No	213 (89)	26 (11)		
		(M [SD]) $n = 332$	(M [SD]) $n = 50$	t	p
Age		12.97 (0.56)	13.35 (0.52)	-4.49	<0.001
BMI		18.40 (3.32)	19.16 (2.44)	-1.07	0.28
Body esteem		2.32 (0.73)	2.00 (0.74)	2.62	0.01
Internalisation of thin-ideals		22.10 (9.00)	25.67 (10.66)	-2.13	0.03
Appearance conversations		11.56 (4.60)	13.86 (3.80)	-2.89	0.004
Self-esteem		3.48 (0.92)	3.16 (1.02)	2.21	0.03
		(Median [IQR]) $n = 332$	(Median [IQR]) $n = 50$	z	p
Peer support		5.75 (5.00 – 6.50)	5.75 (4.75 – 6.50)	0.87	0.38
Depression		2.00 (0.00 – 8.00)	3.00 (2.00 – 9.33)	-0.99	0.32

Notes: n varies slightly due to missing data. ⁺ Given the inaccuracy of Chi-squared tests with low expected cell counts, p value is based on Fisher's exact test.

Incomplete questionnaires associated with the secondary outcomes

A similar procedure to assessment of incomplete questionnaires in the primary outcome was conducted for incomplete questionnaires in the secondary outcomes. Those who had incomplete questionnaires on any of the secondary outcomes at T₂ or T₃ ($n = 143$) were compared to those who did not have incomplete questionnaires on any of the secondary outcomes at T₂ or T₃ ($n = 239$). Those who had not completed the time points were excluded. Although this grouping of secondary outcomes was necessary to control the number of tests, it should be recognised that an assumption has been made that the same variables predict incomplete questionnaires across the different secondary outcomes. Alpha values were adjusted using the Bonferroni correction ($\alpha = 0.004$).

Results are shown in Table 5.6 (below). There were significant differences on incomplete secondary outcomes for school ($\chi^2(2) = 17.23, p < 0.001$), age ($t(380) = -3.38, p = 0.001$), and peer support ($z = 3.40, p < 0.001$). These variables were therefore included as covariates in the mixed models for the secondary outcomes.

Summary of missing data

This trial had participants with missing time points, and with incomplete questionnaires for the primary and secondary outcomes. Missing data were found to be associated with several observed variables. Mixed models can account for data missing at random and provide unbiased estimates through inclusion of variables associated with missing data in the model. Based on these analyses, models of the primary outcome included: school, ethnicity, age and T₁ appearance conversations as covariates; and models of the secondary outcomes included: school, age and T₁ peer support as covariates.

Table 5.6: Comparison of baseline characteristics between those who were and were not missing values for secondary outcomes at T_2 or T_3 .

		Not missing secondary outcomes at $T_{2 3}$ n (%)	Missing secondary outcomes at $T_{2 3}$ n (%)	χ^2	p
School	A	53 (68)	25 (33)	17.23	<0.001
	B	86 (51)	82 (49)		
	C	101 (74)	36 (26)		
Ethnicity	White	133 (67)	66 (33)	5.37	0.15
	Black	32 (53)	31 (47)		
	Asian	42 (63)	25 (37)		
	Other	29 (60)	19 (40)		
Parental education	Primary	2 (100)	0 (0)	1.54	0.55 ⁺
	Secondary	56 (65)	30 (35)		
	University	172 (62)	107 (38)		
Binge eating	Yes	19 (76)	6 (24)	1.97	0.16
	No	210 (62)	129 (38)		
Compensatory behaviours	Yes	82 (59)	57 (41)	1.29	0.26
	No	155 (65)	84 (35)		
		(M [SD]) $n = 239$	(M [SD]) $n = 142$	t	p
Age		12.95 (0.56)	13.15 (0.55)	-3.38	0.001
BMI		18.24 (3.24)	18.98 (3.24)	-1.69	0.10
Body esteem		2.34 (0.71)	2.17 (0.78)	2.20	0.03
Internalisation of thin-ideals		22.42 (9.30)	22.46 (9.05)	-0.03	0.97
Appearance conversations		11.78 (4.77)	11.81 (4.20)	-0.06	0.95
Self-esteem		3.50 (0.91)	3.33 (0.99)	1.74	0.08
		(<i>Median</i> [<i>IQR</i>]) $n = 239$	(<i>Median</i> [<i>IQR</i>]) $n = 142$	z	p
Peer support		6.00 (5.00 – 6.50)	5.50 (4.75 – 6.00)	3.40	<0.001
Depression		2.00 (0.00 – 6.00)	4.00 (0.00 – 8.00)	-1.95	0.05

Notes: n varies slightly due to missing data. ⁺ Given the inaccuracy of Chi-squared tests with low expected cell counts, p value is based on Fisher's exact test.

Trial timetable

The timetable for the trial is shown in Figure 5.2 (below). The clustered nature of the trial meant that recruitment occurred in two stages. First, between May 2011 and July 2011, schools were enrolled into the trial. Following this, in September 2011, participants were recruited via letters given to parents/carers. Pre-intervention assessments (T_1) were conducted immediately following this in September 2011. Delivery of the intervention occurred between October 2011 and December 2011 in Schools A & B. School C had an unexpected timetable disruption in the middle of delivery and so the intervention occurred between October 2011 and February 2012. Post-intervention assessments (T_2) were completed immediately following the intervention (January 2012 in Schools A & B, February 2012 in School C). Follow up assessments (T_3) occurred approximately three months following the intervention (May 2012 in Schools A & B, June 2012 in School C). Data collection for the trial was completed in June 2012.

	2011								2012					
	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
School recruitment														
Participant recruitment														
Intervention delivery														
Pre-intervention assessments														
Post-intervention assessments														
Follow-up assessments														

Figure 5.2: Timetable of recruitment, intervention delivery and assessments, by school.

Baseline characteristics

School characteristics

There were three schools in the trial. All of the schools were girls' schools, and all were state-funded (i.e. non-fee paying). As shown in Table 5.7, the three schools differed in several ways. School C was based in the East of England whereas Schools A and B were in Outer London. Schools B and C were grammar schools, meaning that students were selected for entry based on academic ability; School A, however, was comprehensive, serving all students in the local area. School A was substantially smaller than the other schools and also included students from a greater range of socio-economic backgrounds. One quarter of students in School A were eligible for free school meals (a proxy measure of deprivation, as eligibility is dependent on low family income). This is well above the national average free school meal eligibility, which is 15 percent (Department for Education, 2011b).

Table 5.7: School characteristics: location, school type, number of students and percentage of students eligible for free school meals.

	Location	School type	Students per year group	% Students eligible for free school meals
School A	Outer London	Comprehensive	120	24
School B	Outer London	Grammar	209	2
School C	East of England	Grammar	150	3

Participant characteristics

Four hundred and forty female students (M age = 13.03, SD = 0.57) were included in the trial. Participant characteristics are summarized in Table 5.8 (below). Students were from year 8 in Schools A and C, and from year 9 in School B, and so participants in School B were on average one year older than those in the other schools. Overall, half of the sample reported their ethnicity as White with the remainder identifying as Black, Asian or Other. As a comparison, 77 percent of secondary school pupils overall in the UK identify themselves as White, and 44 percent of secondary school pupils in London identify themselves as White (Department for Education, 2011a). There were significant differences between the three schools in terms of the ethnic background of

participants ($\chi^2(6) = 96.7, p < 0.001$): School A had the highest proportion of students from ethnic minorities, roughly representative of London schools, and School C had the lowest proportion of students from ethnic minorities, roughly representative of the wider UK population. In terms of parental education, the majority of participants reported that at least one parent attended university or an equivalent form of higher education. There were no differences in the level of parental education between schools ($\chi^2(4) = 6.45, p = 0.10$).²²

Table 5.8: Participant age, ethnicity and parental education by school.

		Total <i>n</i> = 440	School A <i>n</i> = 99	School B <i>n</i> = 199	School C <i>n</i> = 142
Age	(<i>M</i> [<i>SD</i>])	13.03 (0.57)	12.57 (0.32)	13.55 (0.33)	12.62 (0.31)
Year group		8-9	8	9	8
Ethnicity	White (<i>n</i> [%])	212 (51)	22 (23)	93 (51)	97 (72)
	Black (<i>n</i> [%])	72 (17)	11 (11)	48 (26)	13 (10)
	Asian (<i>n</i> [%])	75 (18)	43 (45)	20 (11)	12 (9)
	Other (<i>n</i> [%])	54 (13)	20 (21)	22 (12)	12 (9)
Parental education	Primary (<i>n</i> [%])	2 (<1)	1 (1)	1 (<1)	0 (0)
	Secondary (<i>n</i> [%])	96 (23)	15 (18)	40 (21)	41 (30)
	University (<i>n</i> [%])	314 (76)	68 (81)	149 (79)	97 (70)

Note: *n* varies due to missing data for ethnicity (*n* = 27) and parental education (*n* = 28).

In order to assess the success of randomisation, comparisons between demographic characteristics and baseline variables between the intervention group and the control group were conducted. These are shown in Table 5.9 (below). Once a Bonferroni correction was applied to alpha levels ($\alpha = 0.004$) there were no significant differences between the intervention group and the control group at baseline.

²² Due to low cell counts, *p* value was based on Fisher's exact test.

Table 5.9: *Comparison of baseline variables between the intervention group and the control group.*

		Intervention <i>n</i> (%)	Control <i>n</i> (%)	χ^2	<i>p</i>
Ethnicity	White	133 (53)	79 (47)	3.29	0.34
	Black	37 (15)	35 (21)		
	Asian	43 (17)	32 (19)		
	Other	34 (14)	20 (12)		
Parental education	Primary	2 (1)	0 (0)	1.48	0.68+
	Secondary	57 (24)	39 (23)		
	University	182 (76)	132 (78)		
Binge eating	Yes	16 (7)	13 (8)	0.26	0.61
	No	228 (93)	152 (92)		
Compensatory behaviours	Yes	94 (38)	62 (35)	0.24	0.63
	No	155 (62)	113 (65)		
		(<i>M</i> [<i>SD</i>]) <i>n</i> = 258	(<i>M</i> [<i>SD</i>]) <i>n</i> = 182	<i>t</i>	<i>p</i>
Age		13.06 (0.59)	12.99 (0.54)	-1.08	0.28
Body esteem		2.30 (0.75)	2.27 (0.70)	-0.35	0.73
Internalisation of thin-ideals		23.09 (9.42)	20.94 (8.63)	-2.33	0.02
Appearance conversations		11.75 (4.59)	11.73 (4.53)	-0.02	0.99
Self-esteem		3.42 (1.00)	3.52 (0.87)	1.15	0.25
		(<i>Median</i> [<i>IQR</i>]) <i>n</i> = 258	(<i>Median</i> [<i>IQR</i>]) <i>n</i> = 182	<i>z</i>	<i>p</i>
Peer support		5.75 (5.00 – 6.75)	5.75 (4.75 – 6.25)	-2.32	0.02
Depression		2.00 (0.00 – 8.00)	2.00 (0.00 – 6.00)	-0.64	0.52

Notes: *n* varies slightly due to missing data. + Given the inaccuracy of Chi-squared tests with low expected cell counts, *p* value is based on Fisher's exact test.

Efficacy: Primary outcome

A linear mixed model was used to assess the effect of the intervention on body esteem. The model included school, age, ethnicity and baseline appearance conversations as covariates as these variables were found to be associated with missing data for the primary outcome. The baseline values of body esteem were also included as a covariate in order to control for any differences between the groups before the intervention.

The initial model included random intercepts for participant ID, class and school, in order to reflect the hierarchically clustered nature of these data. However, the intra-cluster correlation coefficients (*ICC*) for class and school were small (class *ICC* = 0.007; school *ICC* < 0.001) and likelihood ratio tests (LR) showed that including them did not significantly improve the model (LR $\chi^2(2) = 0.29$, $p = 0.87$). Therefore the random effects for class and school were removed. Inclusion of a random slope for participant ID was considered, but this did not significantly improve the fit (LR $\chi^2(2) = 0.03$, $p = 0.98$) so was not included in the final model.

The validity of linear mixed models is subject to certain assumptions (Field, 2009). There must be homoscedasticity, meaning that at each level of the predictor variable the variance of the residuals is the same. The residuals in the model must be random, and have a normal distribution with a mean of zero, and the coefficients of the random effects must be normally distributed. These assumptions were assessed through visual exploration of box plots comparing the variance of residuals between groups and across time, a *q-q* plot, and box plots of the random effect of participant ID. All assumptions were met by the data.

As differences in baseline levels of body esteem were statistically removed, the efficacy of the intervention was indicated by a significant main effect of group. A main effect of time would indicate that both groups changed over the follow up period. A group*time interaction would indicate that differences between the groups changed over the follow up period. If there were significant main effects or interactions effects, planned contrasts using the Wald statistic were used to explore the nature of group differences at post-intervention and at follow up. The alpha values for these planned contrasts were adjusted using the Bonferroni correction ($\alpha = 0.025 [0.05/2]$).

Table 5.10: Adjusted means for body esteem, by group and time.

	T ₁ : Baseline (Covariate Value)	T ₂ : Post-Intervention ($M[SE]$)	T ₃ : Follow Up ($M[SE]$)
Intervention	2.30	2.31 (0.32)	2.37 (0.32)
Control		2.22 (0.39)	2.22 (0.39)
p		0.07	0.006
Effect size (d)		0.12	0.19

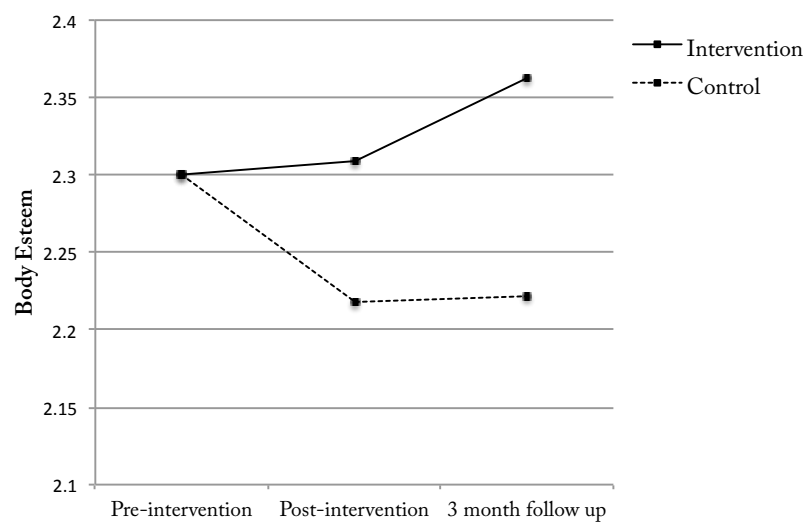


Figure 5.3: Adjusted means for body esteem for the intervention group and control group across time.

Adjusted means for body esteem by group and time are shown in Table 5.10. There was a marginal main effect of group ($b = 0.09$, $SE = 0.05$, $p = 0.08$), no main effect of time ($b = 0.004$, $SE = 0.04$, $p = 0.92$), and no group*time interaction ($b = 0.05$, $SE = 0.05$, $p = 0.28$). Further exploration using Wald tests showed a marginal difference between the groups at post-intervention (Wald $\chi^2(1) = 3.17$, $p = 0.07$) and a significant difference between the groups at three-month follow up (Wald $\chi^2(1) = 7.60$, $p = 0.006$). The marginal difference at post-intervention was not significant when Bonferroni corrected alpha values were used ($\alpha = 0.025$). The difference at three-month follow up remained significant. Effect sizes for the group differences were small. At both time points the intervention group had significantly higher body esteem than the control group. The

adjusted means for body esteem are shown graphically in Figure 5.3, above. Note that higher scores represent greater body esteem.

Efficacy: Continuous secondary outcomes

The three continuous secondary outcomes were assessed using similar linear mixed models to the primary outcome. These outcomes were: thin-ideal internalisation, appearance conversations and self-esteem. As for the primary outcome, variables predicting missing data were included in the model. These were school, age and peer support. In addition, baseline values of outcomes were included as covariates to control for any differences between the groups before the intervention.

Model building for each of the outcomes was conducted in the same manner as for the primary outcome. For each of the three outcomes, there were similar results of the model building process. In each instance, the intra-cluster correlations for school and class were very small ($ICC < 0.01$) and LR tests showed that inclusion of these random effects did not significantly improve the model. Similarly, the addition of a random slope for participant ID did not significantly improve the model. Assumptions of the linear mixed models (e.g. normal distribution of residuals) were also checked in the manner described above and the data were found to meet these requirements.

The adjusted means, significance values and effect sizes for internalisation, appearance conversations and self-esteem, by group and time, are shown in Table 5.11 (below). For internalisation, there was a significant main effect of group ($b = -1.53$, $SE = 0.74$, $p = 0.04$), no main effect of time ($b = -0.47$, $SE = 0.54$, $p = 0.38$) or group*time interaction ($b = 0.10$, $SE = 0.70$, $p = 0.89$). Post hoc testing using the Wald statistic showed significant differences between the groups at post-intervention ($\chi^2(1) = 4.21$, $p = 0.04$), which was maintained the three month follow up ($\chi^2(1) = 3.84$, $p = 0.05$). These differences were marginally significant when the Bonferroni corrected alpha values were used. The effect sizes of these differences were small. The adjusted means are shown graphically in Figure 5.4 (top panel, p. 173). Note that higher scores represent greater thin-ideal internalisation.

Table 5.11: Adjusted means for internalisation, appearance conversations and self-esteem, by group and time.

		T ₁ : Baseline (Covariate Value)	T ₂ : Post- Intervention (<i>M</i> [<i>SE</i>])	T ₃ : Follow Up (<i>M</i> [<i>SE</i>])
Internalisation	<i>Intervention</i>	22.28	21.94 (0.47)	21.57 (0.48)
	<i>Control</i>		23.47 (0.57)	22.99 (0.55)
	<i>p</i>		0.04	0.05
	Effect size (<i>d</i>)		0.17	0.16
Appearance Conversations	<i>Intervention</i>	11.70	11.73 (0.25)	12.68 (0.21)
	<i>Control</i>		11.73 (0.25)	12.39 (0.23)
	<i>p</i>		0.90	0.34
	Effect size (<i>d</i>)		0.01	0.06
Self-esteem	<i>Intervention</i>	3.45	3.52 (0.06)	3.47 (0.06)
	<i>Control</i>		3.33 (0.07)	3.34 (0.07)
	<i>p</i>		0.04	0.15
	Effect size (<i>d</i>)		0.20	0.13

For appearance conversations, there was no significant main effect of group ($b = -0.04$, $SE = 0.32$, $p = 0.90$), or group*time interaction ($b = 0.34$, $SE = 0.45$, $p = 0.45$), but there was a significant main effect of time ($b = 0.66$, $SE = 0.34$, $p = 0.05$). Further exploration revealed a significant increase in appearance conversations in both the intervention group ($\chi^2(1) = 3.76$, $p = 0.05$) and the control group ($\chi^2(1) = 11.91$, $p < 0.01$) between the post-intervention assessment and the three month follow up. Once Bonferroni adjusted alpha values were used the increase only remained significant in the control group. The adjusted means are shown graphically in Figure 5.4 (middle panel, p. 173). Note that higher scores represented more frequent appearance conversations.

For self-esteem there was a significant main effect of group ($b = 0.19$, $SE = 0.09$, $p = 0.04$), no significant main effect of time ($b = 0.01$, $SE = 0.06$, $p = 0.87$) and no group*time interaction ($b = -0.06$, $SE = 0.08$, $p = 0.49$). The comparisons between the groups at each of the time points, revealed a significant difference between the groups at immediate post-intervention ($\chi^2(1) = 4.36$, $p = 0.04$), but this difference was lost at three

month follow up ($\chi^2(1) = 2.07, p = 0.15$). The effect of group at post-intervention was only marginally significant when Bonferroni adjusted alpha values were used. The effect size for the post-intervention difference was small. The adjusted means are shown graphically in Figure 5.4 (bottom panel, p. 173). Note that higher scores represent greater self-esteem.

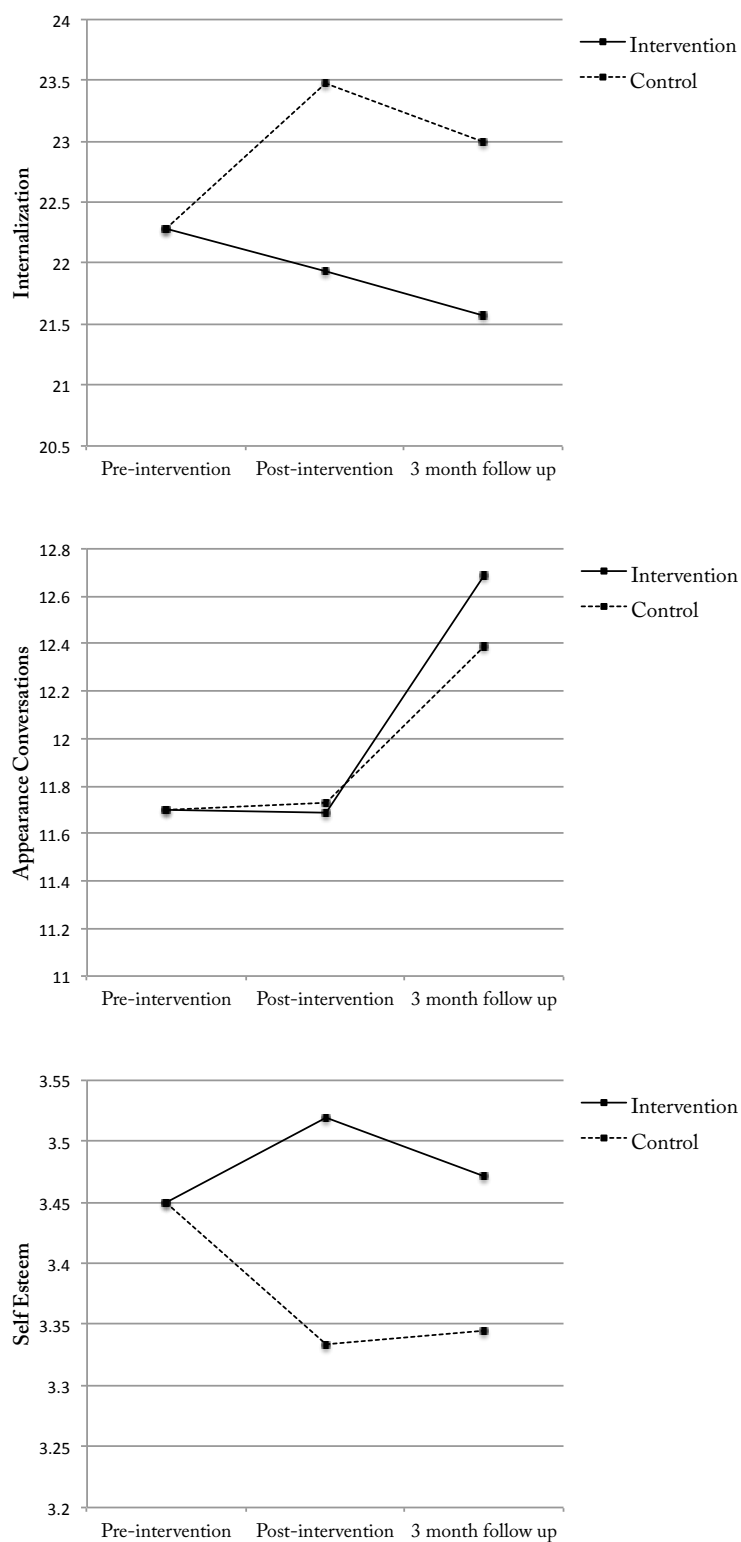


Figure 5.4: Adjusted means for internalisation (top), appearance conversations (middle) and self-esteem (bottom) for the intervention group and control group across time.

Efficacy: Binary secondary outcomes

There were a number of binary secondary outcomes, including high depressive symptoms, high peer support, presence of binge eating episodes an average of once a week, and the presence of inappropriate compensatory behaviours. The percentage of students by group and time reporting these outcomes are shown in Table 5.12 (below). There were relatively few participants reporting the use of vomiting or laxative/diuretic use for weight loss (2 – 5%), which was problematic for the random effect logistic regression models. As such, all analyses were run using the combined compensatory behaviour variable.

Table 5.12: *Number and percentage of participants reporting depressive symptoms, peer support, binge eating, and compensatory behaviours, by group and time.*

	Baseline <i>n</i> (%)		Post-intervention <i>n</i> (%)		Three month follow up <i>n</i> (%)	
<i>Depressive symptoms</i>	<u>Low</u>	<u>High</u>	<u>Low</u>	<u>High</u>	<u>Low</u>	<u>High</u>
Control	143 (88)	19 (12)	126 (84)	24 (16)	133 (80)	33 (20)
Intervention	190 (84)	37 (16)	177 (82)	40 (18)	178 (81)	75 (19)
<i>Peer support</i>	<u>Low</u>	<u>High</u>	<u>Low</u>	<u>High</u>	<u>Low</u>	<u>High</u>
Control	85 (50)	86 (50)	68 (45)	82 (55)	84 (51)	81 (49)
Intervention	97 (43)	131 (57)	82 (39)	129 (61)	94 (44)	121 (56)
<i>Binge eating</i>	<u>No</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>
Control	152 (92)	13 (8)	154 (96)	7 (4)	165 (96)	6 (4)
Intervention	228 (93)	16 (7)	214 (94)	14 (6)	224 (96)	9 (4)
<i>Compensatory behaviours</i>	<u>No</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>
Control	113 (65)	62 (35)	105 (64)	60 (36)	129 (75)	42 (24)
Intervention	115 (62)	94 (38)	138 (60)	93 (40)	162 (70)	70 (30)
<i>Vomiting</i>	<u>No</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>
Control	171 (98)	4 (2)	159 (96)	6 (4)	165 (96)	6 (4)
Intervention	237 (95)	12 (5)	220 (95)	11 (5)	223 (96)	9 (4)
<i>Laxatives</i>	<u>No</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>
Control	171 (98)	4 (2)	159 (98)	4 (2)	170 (99)	1 (1)
Intervention	239 (98)	4 (2)	226 (99)	3 (1)	227 (98)	4 (2)
<i>Fasting</i>	<u>No</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>
Control	146 (84)	27 (16)	130 (80)	33 (20)	142 (83)	29 (17)
Intervention	185 (77)	55 (23)	170 (75)	58 (25)	180 (78)	52 (22)
<i>Excessive exercise</i>	<u>No</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>
Control	126 (74)	45 (26)	122 (78)	35 (22)	142 (85)	25 (15)
Intervention	176 (73)	66 (27)	170 (76)	54 (24)	179 (78)	50 (22)

Note: n varies due to missing data.

The binary outcomes were assessed using random effects logistic regression models, which are similar to the linear mixed models used for the analysis of continuous outcomes but with the ability to manage binary outcomes. The same basic model was used, with baseline values of the outcomes included as covariates and school, age and peer support included as covariates because of their association with missing data. The model used was not able to model hierarchical random effects (participants within classes within schools), but given the results from the continuous outcomes that the clustering effect of class and school was negligible, it was assumed that this would not pose a problem for interpretation of these results. As with the continuous outcomes, a random intercept for participant ID was included to model participants' repeated measures over time. Across all outcomes, inclusion of this random intercept significantly improved the fit of the model ($\text{LR } \chi^2(1) \geq 30.50, p \leq 0.001$).

Table 5.13: *Odds ratios (OR) and significance testing for main effects of group in the binary secondary outcomes.*

Outcome	OR	95% CI		<i>p</i>
		Lower	Upper	
Depression	1.49	0.46	4.78	0.50
Peer support	1.40	0.64	3.06	0.40
Binge eating	4.44	0.39	51.22	0.23
Compensatory behaviours	1.69	0.74	3.89	0.22

As can be seen from the confidence intervals and the *p* values in Table 5.13, there was no main effect of group for any of the binary outcomes. This means that there were no differences in the chance of an individual in the intervention group or control group reporting depressive symptoms, low peer support, binge eating episodes or use of inappropriate compensatory behaviours. There was also no main effect of time in any of the outcomes apart from the use of compensatory behaviours ($\text{OR} = 0.33, 95\% \text{ CI} = 0.15 - 0.72, p = 0.005$), which showed that overall, regardless of group, the use of compensatory behaviours tended to decrease over the study follow up period. There were no significant group*time interactions.

Reliable and clinically significant change

It was only possible to calculate the reliable and clinically significant change for measures for which there were norms available for both the clinical and normal populations. Of the outcomes used, body esteem, thin-ideal internalisation and depressive symptoms met this criterion. The norms and reliability measures used for the analyses are shown in Table 5.14, below. Wherever possible, norms from female adolescents were used. It is worth noting that reliable and clinically significance change can only be calculated for those participants with complete data on these variables, so n varies from the analyses presented above. As the results for $T_1 - T_2$ and $T_1 - T_3$ were largely the same, for the sake of clarity, data presented here focus on $T_1 - T_2$ only. Data between T_1 and T_3 are included in Appendix F. Divergences in results between the two analyses are also highlighted in the footnotes to the main text. In order to control for multiple testing, Bonferroni adjusted alpha levels were used ($\alpha = 0.025$ [$0.05/2$]).

Table 5.14: Norms and measures of reliability used in the computation of reliable and clinically significant change cut off scores.

Body esteem (Body Esteem Scale)			
<i>Range: 0 – 4, Reliable change index: 0.48, Clinical significance cut off: 1.56</i>			
Measure	Value	Source	Notes on the sample
Reliability (α)	0.94	Current sample	
$M_{clin}(SD_{clin})$	1.21 (0.70)	Mendelson, McLaren, Gauvin, and Steiger (2002)	Female adults
$M_{norm}(SD_{norm})$	2.07 (1.04)	Mendelson and White (1997)	Female adolescents
Thin-ideal internalisation (SATAQ-3)			
<i>Range: 9 – 45, Reliable change index: 7.27, Clinical significance cut off: 30.14</i>			
Measure	Value	Source	Notes on the sample
Reliability (α)	0.92	Current sample	
$M_{clin}(SD_{clin})$	36.83 (8.31)	Calogero, Davis, and Thompson (2004)	Female adolescents
$M_{norm}(SD_{norm})$	22.68 (9.27)	Wilksch and Wade (2012)	Female adolescents
Depressive Symptoms (DASS-21 – Depression)			
<i>Range: 0 – 36, Reliable change index: 4.36, Clinical significance cut off: 7.20</i>			
Measure	Value	Source	Notes on the sample
Reliability (α)	0.88	Current sample	
$M_{clin}(SD_{clin})$	15.00 (13.04)	Harrison, Sullivan, Tchanturia, and Treasure (2010)	Female adults
$M_{norm}(SD_{norm})$	4.49 (4.54)	Szabó (2010)	Female adolescents

Body esteem

The extent of reliable and clinically significant change was assessed separately for those participants initially above the clinical cut off and those initially below the clinical cut off. Based on the cut off score calculated as 1.56 for the *Body Esteem Scale* (see Table 5.14, above), 34 (17%) participants in the intervention group and 26 (19%) participants in the control group were initially in the clinical range for body esteem. A greater percentage of participants showed clinically significant improvements (i.e. moving from the clinical range to the normal range) in the intervention group (50%) compared to the control group (38%), although this difference was not statistically significant ($\chi^2(1) = 0.79$, $p = 0.37$). There was greater reliable change in the direction of improvement in the intervention group (32%) compared to the control group (7%), a difference that was statistically significant ($\chi^2(1) = 5.97$, $p = 0.02$). Twenty-nine per cent of participants in the intervention group showed clinically significant and reliable improvement in body esteem compared with eight per cent in the control group.

Table 5.15: *Reliable and clinically significant change in body esteem ($T_1 - T_2$) in those participants above the clinical cut off at baseline.*

	Intervention group			Control group		
	<i>Reliable change</i>		Total <i>n</i> (%)	<i>Reliable change</i>		Total <i>n</i> (%)
	Yes <i>n</i> (%)	No <i>n</i> (%)		Yes <i>n</i> (%)	No <i>n</i> (%)	
<i>No clinically significant change</i>	1 (3)	16 (47)	17 (50)	0 (0)	16 (62)	16 (62)
<i>Clinically significant improvement</i>	10 (29)	7 (21)	17 (50)	2 (8)	8 (30)	10 (38)
Total	11 (32)	23 (69)	34 (100)	2 (8)	24 (92)	26 (100)

Note: Percentages are based on whole group totals. ^a 100% this reliable change was in the direction of improved body esteem.

Turning to those participants who were initially in the normal range for body esteem, results are shown in Table 5.16, below. There were no participants in either the intervention group or control group that showed clinically significant worsening of body esteem (i.e. moving from the normal range into the clinical range), suggesting no harm to body esteem caused by the intervention. All of the reliable change observed in this group was in the direction of improved body esteem. A greater proportion of

participants in the intervention group showed reliable improvements in body esteem (12%) compared to the control group (4%), a difference that was statistically significant ($\chi^2(1) = 6.58, p = 0.01$).²³

Table 5.16: *Reliable and clinically significant change in body esteem ($T_1 - T_2$) in those participants below the clinical cut off at baseline.*

	Intervention group			Control group		
	<i>Reliable change</i>		Total <i>n</i> (%)	<i>Reliable change</i>		Total <i>n</i> (%)
	Yes <i>n</i> (%)	No <i>n</i> (%)		Yes <i>n</i> (%)	No <i>n</i> (%)	
<i>No clinically significant change</i>	20 (12) ^a	142 (88)	162 (100)	4 (4) ^a	110 (96)	114 (100)
<i>Clinically significant worsening</i>	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Total	20 (12)	142 (88)	162 (100)	4 (4)	110 (96)	114 (100)

Note: Percentages are based on group totals. ^a 100% these reliable changes were in the direction of improved body esteem.

Thin-ideal internalisation

Based on the clinical cut off for the *SATAQ-3* calculated as 30.14 (see Table 5.14, above), 48 (24%) participants in the intervention group and 19 (14%) participants in the control group were above the clinical cut off for thin-ideal internalisation at baseline. Results are shown in Table 5.17, below. There was no difference in the proportion of reliable change between the intervention group (2%) when compared to the control group (5%) ($\chi^2(1) = 0.48, p = 0.49$).²⁴ There was a greater proportion of participants showing clinically significant improvement in the intervention group (42%) compared to the control group (33%), although this difference was not statistically significant ($\chi^2(1) = 0.13, p = 0.72$).

²³ When comparing T_1 to T_3 , this difference became marginally significant ($\chi^2(1) = 3.15, p = 0.08$). Data are shown in Appendix F.2.

²⁴ When comparing T_1 to T_3 , there was, however a marginally significant difference ($\chi^2(1) = 4.73, p = 0.03$.) between the groups. Interpretation of this difference is complicated because the direction of reliable change varies within the groups. The data are shown in Appendix F.3.

Table 5.17: *Reliable and clinically significant change in thin-ideal internalisation (T_1 – T_2) in those participants above the clinical cut off at baseline.*

	Intervention group			Control group		
	<i>Reliable change</i>		Total <i>n</i> (%)	<i>Reliable change</i>		Total <i>n</i> (%)
	Yes <i>n</i> (%)	No <i>n</i> (%)		Yes <i>n</i> (%)	No <i>n</i> (%)	
<i>No clinically significant change</i>	1 (2) ^a	27 (56)	28 (58)	1 (5) ^a	11 (58)	12 (63)
<i>Clinically significant improvement</i>	0 (0)	20 (42)	20 (42)	0 (0)	7 (37)	7 (37)
Total	1 (2)	47 (98)	48 (100)	1 (5)	18 (95)	19 (100)

Note: Percentages are based on whole group totals. ^a 100% this reliable change was in the direction of worsening thin-ideal internalisation.

For participants that were below the clinical cut off at baseline, (76% intervention group, 86% control group), results are shown in Table 5.18. There were 16 participants (11%) in the intervention group and 8 participants (6%) in the control group that showed clinically significant worsening of thin-ideal internalisation. None of these participants changed reliably. The difference between the groups was not statistically significant ($\chi^2(1) = 1.63, p = 0.20$), indicating no harm due to the intervention. There were no differences in the proportion of participants showing reliable change across the two groups ($\chi^2(1) = 0.91, p = 0.34$).

Table 5.18: *Reliable and clinically significant change in thin-ideal internalisation (T_1 – T_2) in those participants below the clinical cut off at baseline.*

	Intervention group			Control group		
	<i>Reliable change</i>		Total <i>n</i> (%)	<i>Reliable change</i>		Total <i>n</i> (%)
	Yes <i>n</i> (%)	No <i>n</i> (%)		Yes <i>n</i> (%)	No <i>n</i> (%)	
<i>No clinically significant change</i>	12 (8) ^a	122 (81)	135 (89)	13 (11) ^a	94 (82)	107 (94)
<i>Clinically significant worsening</i>	0 (0)	16 (11)	16 (11)	0 (0)	7 (6)	7 (6)
Total	12 (8)	139 (29)	151 (100)	13 (11)	101 (89)	114 (100)

Note: Percentages are based on group totals. ^a 100% these reliable changes were in the direction of worsening thin-ideal internalisation.

Depressive symptoms

Based on the clinical cut off score of 7.20 for the *DASS-21-Depression* (Table 5.14, above), 57 (29%) participants from the intervention group and 31 (24%) participants from the control group were above the clinical cut off for depressive symptoms at baseline. The results for these participants are shown in Table 5.19. In terms of reliable change, 18% participants in the intervention group showed reliable change compared with 23% in the control group. The difference between the groups was not statistically significant ($\chi^2(1) = 0.32, p = 0.57$). There were also no differences between the groups in terms of the proportion of participants showing clinically significant improvements in depressive symptoms ($\chi^2(1) = 0.001, p = 0.97$).

Table 5.19: *Reliable and clinically significant change in depressive symptoms ($T_1 - T_2$) in those participants above the clinical cut off at baseline.*

	Intervention group			Control group		
	<i>Reliable change</i>		Total <i>n</i> (%)	<i>Reliable change</i>		Total <i>n</i> (%)
	Yes <i>n</i> (%)	No <i>n</i> (%)		Yes <i>n</i> (%)	No <i>n</i> (%)	
<i>No clinically significant change</i>	10 (18) ^a	27 (47)	37 (65)	7 (23) ^a	13 (42)	20 (65)
<i>Clinically significant improvement</i>	0 (0)	20 (35)	20 (35)	0 (0)	11 (35)	11 (35)
Total	10 (18)	47 (82)	57 (100)	7 (23)	24 (77)	31 (100)

Note: Percentages are based on whole group totals. ^a 100% these reliable changes were in the direction of improved depressive symptoms.

Turning to the participants that were below the clinical cut off at baseline (71% intervention group and 76% control group), results are shown in Table 5.20, below. Twenty-one (15%) participants in the intervention group showed clinically significant worsening of depressive symptoms, compared with 19 (20%) participants in the control group. This difference was not statistically significant between the groups ($\chi^2(1) = 0.90, p = 0.34$), suggesting no harm from the intervention for depressive symptoms. There were also no differences between the groups in the proportion of participants showing reliable change ($\chi^2(1) = 0.14, p = 0.71$).

Table 5.20: *Reliable and clinically significant change in depressive symptoms ($T_1 - T_2$) in those participants below the clinical cut off at baseline.*

	Intervention group			Control group		
	<i>Reliable change</i>		Total <i>n</i> (%)	<i>Reliable change</i>		Total <i>n</i> (%)
	Yes <i>n</i> (%)	No <i>n</i> (%)		Yes <i>n</i> (%)	No <i>n</i> (%)	
<i>No clinically significant change</i>	4 (3) ^a	116 (82)	120 (85)	2 (2) ^a	76 (78)	78 (80)
<i>Clinically significant worsening</i>	0 (0)	21 (15)	21 (15)	0 (0)	19 (20)	19 (20)
Total	4 (3)	137 (97)	141 (100)	2 (2)	95 (98)	97 (100)

Note: Percentages are based on group totals. ^a 100% these reliable changes were in the direction of improved depressive symptoms.

Acceptability

Turning to acceptability of the intervention, students were asked to rate how much they liked the lessons and how useful they found the material. Student responses are shown in Figure 5.5. Approximately three quarters of students were either neutral or positive about how enjoyable the lessons were, and approximately two thirds of students were neutral or positive about the usefulness of the lessons. In contrast, six per cent of students said they really did not like the lessons, and ten per cent of students did not find the lessons useful in any way.

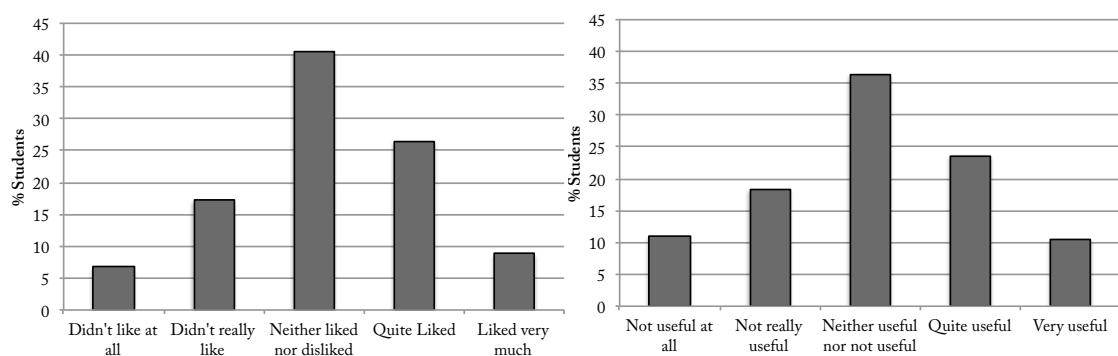


Figure 5.5: Bar charts showing student responses to acceptability questions.

Left panel: “How much did you enjoy the Me, You & Us lessons?” ($n = 189$)

Right panel: “How useful did you find the Me, You & Us lessons?” ($n = 187$)

In order to explore whether there were particular factors that were related to the acceptability of the lessons, a series of spearman's rank correlations and chi-squared tests were conducted. Bonferroni adjusted alpha levels were used to control for multiple testing ($\alpha = 0.004$, $[0.05/13]$). In terms of eating disorder risk status, none of the baseline values of the outcomes (body esteem, thin-ideal internalisation, appearance conversations, self-esteem, peer support, depression) were associated with how much students liked or found the lessons useful. However, age and school were of importance. Younger students both liked the lessons more ($r(189) = -0.45$, $p < 0.001$) and found them more useful ($r(187) = -0.37$, $p < 0.001$). There was a significant difference in acceptability between the schools (likeability: $\chi^2(8) = 63.85$, $p < 0.001$; usefulness: $\chi^2(8) = 37.65$, $p < 0.001$). Figure 5.6 shows the nature of these school differences: whereas likeability and perceived usefulness of the lessons was high in School A and School C, the response was more negative from students in School B.

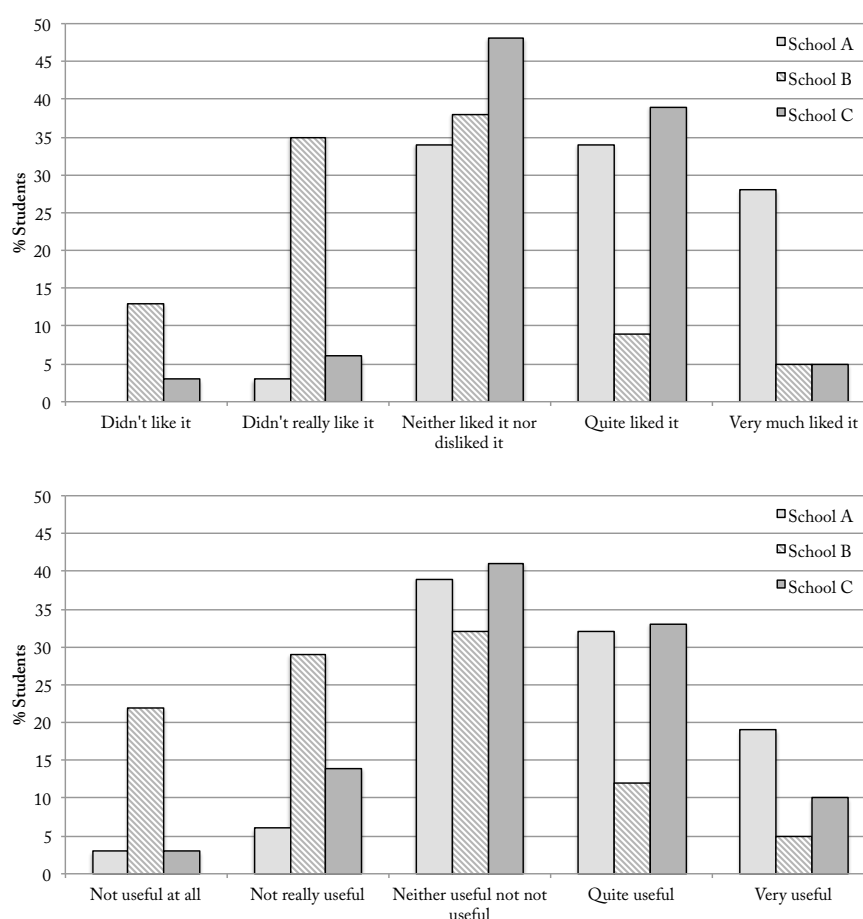


Figure 5.6: Bar charts showing student responses to acceptability questions, by school.

Top panel: How much did you enjoy the Me, You & Us lessons? ($n = 189$)

Bottom panel: How useful did you find the Me, You & Us lessons? ($n = 187$)

Fidelity of delivery

Two observations of lessons were carried out at each school in order to assess fidelity of delivery. Adherence to the intervention manual was assessed through rating whether each of the prescribed activities was or was not completed during the lesson. Each lesson contained four or five activities, meaning that ratings were made for 28 activities overall. Results from the rating, first for the whole sample and then individually by school are shown in Figure 5.7. When looking across the schools, teachers were able to deliver approximately two-thirds of the intervention material. When breaking down content delivery by school, there were clear differences between the sites. School A and School C delivered 78 percent of the material, meaning that on average one activity per lesson was not completed. In contrast, fidelity of content delivery in School B was relatively poor: on average only half of the activities were completed.

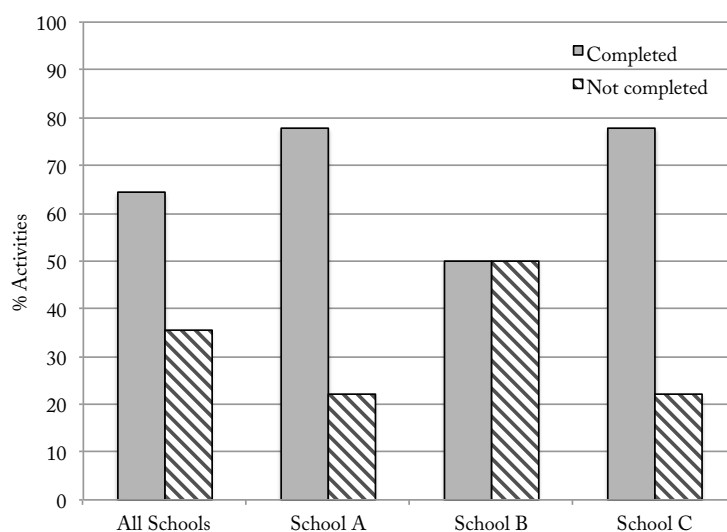


Figure 5.7: Percentage of activities completed for the whole sample and by school.

Moderating effect of school

Given the differences in fidelity and acceptability between schools, additional analyses were conducted to explore whether there was a moderating effect of school on intervention efficacy. To do this, the mixed models were re-run including a group*school interaction term.²⁵ The group*school interaction was significant for body esteem ($\chi^2(1) = 4.24, p = 0.04$) and for internalisation ($\chi^2(1) = 4.21, p = 0.04$), but not for any other outcomes ($\chi^2(1) < 0.11, p > 0.75$). Further exploration of body esteem revealed a significant main effect of group in School A ($\chi^2(1) = 14.05, p = 0.002$), but not in School B ($\chi^2(1) = 0.04, p = 0.83$) or School C ($\chi^2(1) = 2.38, p = 0.12$). In contrast, further exploration for internalisation revealed a significant main effect of group in School B ($\chi^2(1) = 7.77, p = 0.005$), but not in School A ($\chi^2(1) = 0.56, p = 0.45$) or School C ($\chi^2(1) = 0.26, p = 0.61$).

The group*school interactions for body esteem and internalisation are shown below in Figure 5.8, and Figure 5.9, respectively. In School A, the body esteem of the intervention group rose across the study period and the body esteem of the control group decreased slowly. The main effect of group in School B for internalisation was driven by an increase in internalisation scores in the control group.

²⁵ Reliable and clinically significant change analyses were not re-run as it was deemed that the small number of participants above the clinical cut offs at baseline would mean that there would be insufficient numbers to provide meaningful interpretation if analyses were separated by schools.

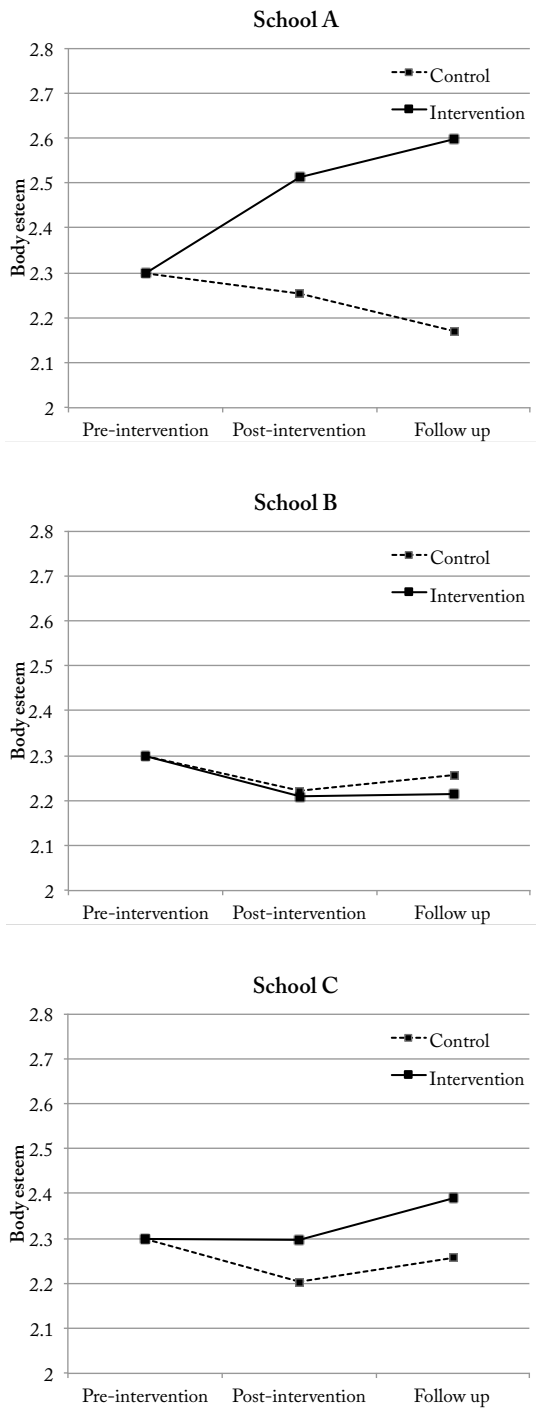


Figure 5.8: Adjusted means of body esteem for the intervention group and control group, by time and school.

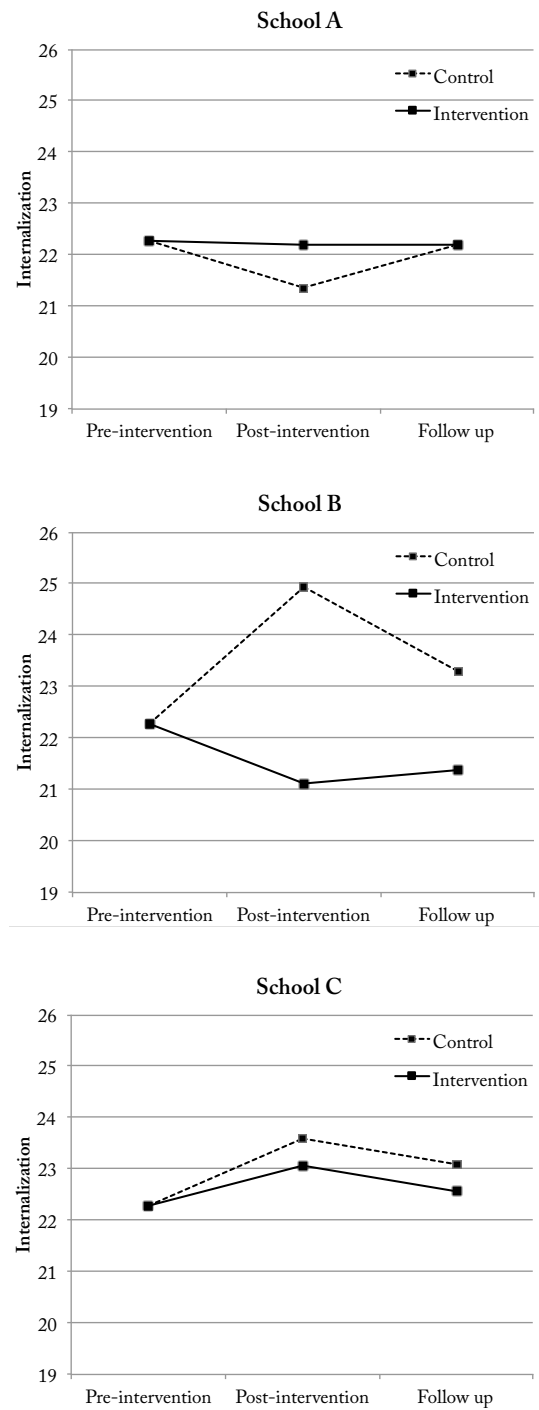


Figure 5.9: Adjusted means of internalisation for the intervention group and control group, by time and school.

Discussion

The main aim of this study was to assess the efficacy of *Me, You & Us* in reducing risk factors for eating disorders in adolescents. In addition, the study aimed to determine the acceptability of this intervention and the feasibility of its delivery by secondary school teachers.

Summary of results

Hypothesis 1: Efficacy

Based on these aims, three hypotheses were produced. The first was that participants allocated to the intervention would show significant improvements in the trial outcomes compared to participants allocated to the control condition. This hypothesis was only partially supported.

There was support for the hypothesis in terms of the primary outcome. The between groups differences in body esteem were small but increased over time. Whereas the differences at post-intervention were marginal, these had increased to being fully significantly different by three months post-intervention. There were also significantly more participants showing reliable change for body esteem in the intervention group compared with the control group. It is of note that the intervention appeared to halt a decline in body esteem rather than specifically boosting body esteem. Similar results have been found in other universal prevention trials with adolescents (Santonastaso et al., 1999; Steiner-Adair et al., 2002; Wilksch & Wade, 2009). And longitudinal studies do show a tendency for body dissatisfaction to rise for girls throughout adolescence (Bearman et al., 2006; Jones, 2004; Wojtowicz & von Ranson, 2011).

The effect size of the intervention on body esteem was small ($d = 0.12 - 0.19$). When teachers have delivered previous interventions, there have not been consistent effects for body esteem (e.g. null findings are reported by Ghaderi et al., 2005; McVey et al., 2007; Phelps et al., 2000). Of those teacher-delivered interventions that have been successful in improving body esteem, effect sizes were similar or slightly larger than those observed in this trial. For example, O'Dea and Abraham (2000) produced an effect size of $d = 0.23$ using *Everybody's Different*, and Steiner-Adair et al. (2002) produced effect sizes

ranging from $d = 0.10$ to $d = 0.33$ across the three subscales of the *Body Esteem Scale*.²⁶ Considering universal interventions delivered by facilitators, the effect sizes for body esteem were in a similar range: $d = 0.29$ for Richardson and Paxton (2010); $d = 0.22$ for boys in Wilksch and Wade (2009) (there was no significant effect for girls); and $d = 0.13$ and $d = 0.28$ for *Appearance* and *Weight* subscales of the *Body Esteem Scale* for the *Girl Talk* intervention reported in McVey, Lieberman, Voorberg, Wardrope, and Blackmore (2003). Taken together this suggests that, compared to other programmes, *Me, You & Us* is reasonably efficacious in improving body esteem in adolescents.

Findings for the secondary outcomes were mixed. In support of the hypothesis, there were small, but significant, differences between the groups in thin-ideal internalisation (although differences were marginally when alpha values were adjusted for multiple comparisons). The improvements in thin-ideal internalisation are of importance because internalisation is the theoretical mediating link between media literacy and body dissatisfaction/eating pathology. In addition, some previous media literacy interventions, which have otherwise performed well, have surprisingly not found improvements in thin-ideal internalisation (Steiner-Adair et al., 2002; Wilksch & Wade, 2009).

The effect size for the current intervention was $d = 0.17$. Comparing this to previous work, two non-randomised controlled trials produced effects of similar sizes ($d = 0.12 - 0.18$) (Richardson & Paxton, 2010; Richardson, Paxton, & Thomson, 2009). In contrast, two previous universal interventions assessed in randomised controlled trials for adolescents have shown larger improvements ($d \approx 0.40$) in thin-ideal internalisation scores (McVey et al., 2007; Neumark-Sztainer et al., 2000). That greater effects were found for *Every Body is a Somebody* (McVey et al., 2007) is perhaps not surprising as this was delivered as part of an intensive whole school intervention. However, the medium sized effect for internalisation reported in Neumark-Sztainer et al. (2000), which was a

²⁶ This, was calculated using the formula presented in Chapter 2, in which the difference in the mean change from baseline between intervention and controls is divided by the pooled standard deviation at baseline (Morris, 2008). All other effect sizes for studies reported in this chapter are calculated in the same way.

short intervention delivered within scout groups, suggests room for improvement in the current programme.

There are a number of reasons why the significant effects for thin-ideal internalisation found in the current trial should be interpreted with caution. First, there were no differences in the reliable and clinically significant change between the groups in terms of thin-ideal internalisation, suggesting that the statistically significant differences may not be meaningful. In addition, as discussed in more detail below, the analyses run separately by schools seemed to show that the main effect of group for thin-ideal internalisation was primarily driven by a substantial increase in thin-ideal internalisation in the control group of one school. Replication of the result would therefore be valuable.

Also in support of the first hypothesis, the intervention produced significant positive effects on self-esteem. Although the result was lost at three month follow up, the post-intervention change on self-esteem was the largest effect of the trial ($d = 0.20$). This finding is worth noting because many previous universal interventions have failed to show changes in self-esteem (Baranowski & Marion, 2001; Dalle Grave et al., 2001; McCabe et al., 2010; Neumark-Sztainer et al., 1995; Santonastaso et al., 1999; Wade et al., 2003). Of those interventions showing improvements in self-esteem (McVey et al., 2004; Richardson & Paxton, 2010; Richardson et al., 2009; Wilksch & Wade, 2009), maintaining these changes to follow up has also proven challenging (McVey et al., 2004; Wilksch & Wade, 2009). Further work focusing on how to sustain effects for self-esteem is therefore needed. Considering effect sizes for these trials, all showed small-moderate effects ranging from $d = 0.25$ (Wilksch & Wade, 2009) to $d = 0.33$ (Richardson et al., 2009). These are slightly larger than observed for *Me, You & Us*, although, again, this was probably to be expected as facilitators, rather than teachers, delivered these interventions.

In contrast to these positive findings, there were no differences between the groups in terms of their reporting of appearance conversations. This was surprising as a previous intervention, *Happy Being Me*, which also targeted these peer interactions successfully reduced appearance conversations (Richardson & Paxton, 2010). The effect size for the *Happy Being Me* trial was small but exceeded the current intervention ($d = 0.17$, compared with $d = 0.06$ for the current trial). One explanation for this difference was

that teachers struggled with this material. During the consultation period, outlined in Chapter 4, teachers noted that the concept of fat talking was new to most staff, and therefore it may be that this section of the material was more difficult for them to deliver. It would be worth investigated whether greater training in this area would alleviate this problem and increase the efficacy of these lessons.

There were also no differences between the groups observed across the range of binary outcomes: peer support, depressive symptoms, or reports of bulimic behaviours. To some extent this may be an issue of floor effects as well as the loss of information from having to dichotomise outcomes due to lack of normality. For statistical purposes, reporting of, for example, depressive symptoms (14%) and binge eating (7%), were relatively rare. From a clinical perspective, however, the rates are concerning.

The lack of influence on depressive symptoms was surprising as previous interventions using positive psychology techniques have had success in this area (Seligman et al., 2009). However, in eating disorder prevention work very few universal interventions have shown positive outcomes for depressive symptoms or negative affect (Ghaderi et al., 2005; McCabe et al., 2010; O'Dea & Abraham, 2000; Varnado-Sullivan et al., 2001). It may be that the dose of content for depressive symptoms is simply too low in eating disorder prevention trials, as successful universal depression prevention trials typically include between eight and twelve sessions (Calear & Christensen, 2010). It may be that focusing on other psychological risk factors, such as perfectionism, would be worth considering.

The lack of significant outcomes for eating pathology in this trial are also a problem mirrored by other universal programmes with adolescents (McVey et al., 2004; O'Dea & Abraham, 2000; Phelps et al., 2000; Richardson & Paxton, 2010; Richardson et al., 2009; Santonastaso et al., 1999; Stewart et al., 2001). This suggests that disordered eating behaviours may be relatively impervious, at least in the short term, to this form of intervention. That said, a universal prevention study primarily targeting obesity showed positive effects on the use of laxatives and diet pills at 21 months follow up (Austin et al., 2005). This implies that it is feasible that improvements in 'upstream' factors, such as body esteem, may induce changes in pathological eating across a longer time frame. In addition, Favaro et al. (2005) observed a reduced one-year incidence of bulimia

nervosa (0%) compared to a control group (3.3%) following an intervention delivered by trained teachers. In this trial the training of the teachers was intensive (taking place over five weeks), suggesting that greater training could be of importance for *Me, You & Us*.

Hypotheses 2 & 3: Acceptability and feasibility

Turning to the second and third hypotheses, which pertained to the acceptability and feasibility of the programme delivery, there was also mixed support. For measures of both acceptability and fidelity there were substantial variations between the three school sites. Whereas overall acceptability was slightly below that usually reported for this sort of intervention (O'Dea & Abraham, 2000; Richardson & Paxton, 2010), further exploration revealed that acceptability was high in Schools A and C but was fairly poor in School B. Similarly, fidelity to the intervention manual was poor in School B, with only approximately half of study activities being completed in the observed lessons.

This raises the question as to why there was such variation. One explanation is that students in School B, who did not respond so well to the intervention, were one year older than those in School A & C. Despite being developed in conjunction with teachers, the material may have been more suitable for the slightly younger age group. An alternative explanation is that staff training and/or intervention delivery varied across schools. Although a standardised training approach was used, training was delivered separately to each school so various factors (e.g. group dynamics, time of day, variation in delivery) could have altered the efficacy.

In addition to variations in acceptability and fidelity, there were differences in outcomes between the three schools for body esteem and thin-ideal internalisation. However, interpretation of these results is complex. The main effect for body esteem was seen in School A only. Acceptability was greatest in School A, and so it may be that features specific to that school site meant the delivery was superior. There may also have been differences in fidelity of delivery between School A and School C, which the rather coarse grained method to assess fidelity used was unable to detect. Previous studies have shown an association between adherence to the programme and efficacy (López-Guimerà, Sánchez-Carracedo, Fauquet, Portell, & Raich, 2011). A caveat on this result is that the power calculation for the current study was not conducted with the intention of separate analyses by school and so these tests were significantly underpowered.

The second of the between school differences was that the main effect for thin-ideal internalisation was only observed in School B. This was surprising as this was the school for which both acceptability and fidelity were poor. Closer inspection of the adjusted means showed that this effect was primarily driven by a rise in thin-ideal internalisation in the control group in School B. Without further investigation, it is not clear whether this was a spurious effect, or whether the intervention produced a genuine buffering effect to a rise in thin-ideal internalisation in this school. Further work to explore whether the effect of the intervention on thin-ideal internalisation can be replicated would add confidence to the validity of this finding.

It is not typical for interventions that are run across several school sites to dissect analyses based on school, but the current findings suggest that this may be a useful analytical step. Several other studies have noted unexplained differences between school sites (Varnado-Sullivan et al., 2001) with similar musings on potential reasons for these. Further understanding about what determines variations in efficacy across sites will be essential in achieving any promise from universal prevention, as being able to see effects across large numbers of young people will rely on working with a large number and wide range of schools. As specific effort was made to produce an intervention that would be contextually appropriate for UK secondary schools, these differences between the school sites underline the importance of future work on creating interventions with the flexibility to successfully adapt to this variety of settings.

Limitations of the trial

Potential for control group contamination

As existing school structures were central to the delivery of the intervention, it was necessary to conduct a cluster randomised controlled trial in which groups of participants were allocated to intervention or control conditions. Having made this decision, the next step was to determine the most suitable the level for the allocation cluster, with the options being that of the class or of the school. There are advantages to each: class allocation is more likely to produce successful randomisation when the number of participating schools is low, as it allows differences between schools to be randomly distributed between groups; however, school allocation prevents

contamination between those in the intervention group and the control group as participants are unlikely to interact with those from a different trial arm.

Given that this was the first trial of this intervention, and so the number of participating schools was low, it was deemed important to choose class as the unit of allocation in order to ensure that successful randomisation was achieved. However, this produced the difficulty of contamination between groups, as participants in the intervention group were very likely to interact with participants in the control group as they were within the same year group in the same school. This is particularly problematic for psycho-social interventions, which aim to alter peer- or school-cultures, as successful interventions would hope to pervade the culture in focus and so are prone to arm contamination.

It is a limitation of this trial that there was no means of assessing whether any contamination between trial arms had occurred. In future, rudimentary success of randomisation could be assessed with focus groups of control students aiming to ascertain whether these students had any knowledge of the intervention content or had spoken to participants from the intervention group about the intervention. A more rigorous, but less practical, option would be to recruit more schools into the trial such that schools could be matched on core characteristics (socio-demographic variables, baseline measures of primary outcomes) and then one school of each matched pair randomly allocated to receive intervention lessons.

Active control

A second limitation of the trial design was that an active control condition was not used. Potentials for sham interventions that could serve as control conditions include activities such as expressive writing (Stice et al., 2006), educational brochures (Stice, Rohde, Shaw, & Gau, 2011), or healthy eating programmes (Baranowski & Marion, 2001). This would allow for the dismantling of the effect of the intervention content from the effect of having any form of intervention in the classroom. Alternatively, *Me, You & Us* could be directly compared with other interventions, such as *Media Smart* (Wilksch & Wade, 2009) or *Happy Being Me* (Richardson & Paxton, 2010).

Sample size and power

The original power calculations for this study suggested that approximately 900 participants were needed per group. However, given that the *ICC* within classes in this trial was negligible, the inflation factor of 2.35 was overestimated. Without the inflation factor the estimate remains above that achieved (394 per group, compared to 253 in the intervention group and 176 in the control group in this trial). Post-hoc estimates of achieved power using the effect size for the primary outcome at three month follow up ($d = 0.19$), show that the trial only has 49 percent power to detect group differences. This is a substantial limitation of the trial and highlights the difficulties of conducting research of universal prevention as such high numbers are needed to detect small effects.

The limit on the sample size for the trial was due to low recruitment of schools, rather than of students within schools (indeed, 94% invited students took part). Most published accounts of programmes do not report on the success of recruitment of schools into these projects and so it is difficult to know if recruitment of schools was better or worse in the current work than previous attempts. Recruitment was demanding for the trial: over 100 schools were sent letters outlining the study, four schools asked to learn more and three schools agreed to take part. Reasons for non-response and differences between participating and non-participating schools are not known, but the extent to which findings can be generalized to other schools needs to be investigated further.

Trial fidelity assessment

A nuanced understanding of the trial was limited by a coarse measure of fidelity. Two researchers observed a subset of lessons and rated the adherence to the intervention manual. This provided a rudimentary indication of the fidelity of intervention delivery but could be greatly improved in future trials. A gold standard system would be to audio record all sessions and have these rated by researchers not otherwise involved in the trial. This has been achieved in selective interventions, suggesting that it is a reasonable aim (Becker et al., 2010). Weekly phone supervision with school staff would also provide a means to recognise and manage any deviations from intervention protocol as the trial was progressing.

A further limitation of this trial was that there was no means of assessing whether any intervention content was inadvertently delivered to control group participants. This would be an important factor to consider in future trials because without the knowledge of whether the information received by the intervention group and control group was distinct the internal validity of the trial may be compromised. That is: we cannot be sure whether non-significant findings are actually due to the ineffectiveness of intervention content. Self-reports from teachers regarding lesson content in control classes would be a practical option for tackling this difficulty.

Reliable and clinically significant change

Although it was a strength of this trial that it included an assessment of reliable and clinically significant change, this method is inherently limited by the quality of the norms that are available for the measures used. Although the best available norms were sought out, two of the clinical norms were based on adult samples, which may have not been accurate for this adolescent population. In addition, decisions about which norms to adopt became essentially arbitrary. Using different norms would affect the reliable change index and the clinical cut off score, and so could in principle alter the overall results.

In addition, this method has been primarily developed for treatment trials (Jacobson & Truax, 1991) and is only now being adopted in the prevention literature. In universal prevention, where the majority of participants do not begin the intervention above the clinical cut off, the method results in small numbers eligible for clinically significant improvements. Meaningful interpretation of the results with so few participants is difficult.

Questionnaire measures

We need to bear in mind when interpreting the results of this trial that there were some limitations of the measures used. First and foremost, all data were based on self-reports, which will always limit the quality of the data that can be obtained when compared to gold standard measures, such as clinical interviews. However, time restrictions on a trial of this size meant that pen and paper questionnaires, which could be administered to a class group simultaneously, was the only feasible option.

In terms of specific measures, the measurement of self-esteem was limited in this trial as assessment was made through a single item rather than a validated multi-item scale. This decision was made in order to keep the length of questionnaires pack down and minimise participant burden in the trial. In future trials the use of a validated scale for adolescents, such as the *Rosenberg Self-esteem Scale* (Rosenberg, 1965), would be advisable. This would also allow for the exploration of reliable and clinically significant change for self-esteem.

Second, self-reported weight and height measurements, which were essential for the screening of anorexia nervosa, were problematic in this sample. Many participants chose not to report their weight and/or height or stated on the questionnaires that they did not know their weight and/or height measurements (missing weight = 24% - 33%; missing height = 15% - 25%). In addition, in some instances it was clear that self-reporting was not accurate (e.g. estimating height as over 190cm).

Although the EDDS has been well validated and is widely used, we know that using self-reports of weight and heights with adolescents (as well as with other populations) can be problematic because adolescents tend to overestimate their height and underestimate their weight (Engstrom, Paterson, Doherty, Trabulsi, & Speer, 2003). Importantly, even small inaccuracies (e.g. +/- 2 kg for weight) can produce substantial inaccuracies in BMI estimates (Ohlmer, Jacobi, & Fittig, 2012). In addition, greater imprecision is shown in those outside of the normal weight range, with underweight adolescents tending to over-estimate their BMI (Ohlmer et al., 2012), and overweight adolescents tending to underestimate their BMI (Elgar, Roberts, Tudor-Smith, & Moore, 2005). Ideally we would have been able to gain a more objective measure of weight and height. However, we chose not to weigh participants because we did not want to encourage self-weighing, which has been associated with body dissatisfaction and eating pathology in adolescent samples (Neumark-Sztainer, van den Berg, Hannan, & Story, 2006). In future research an alternative would be to gain objective measurements from alternative sources, such as school nurse records, if they are available.

Follow up length

Due to time constraints of this project, the follow up length of the trial was only three months. This limits the conclusions that can be drawn because we know that the effects of interventions may dissipate over time (McVey et al., 2007; Neumark-Sztainer et al., 2000). The highest quality studies have follow up periods of several years (Stice, Marti, et al., 2008; Wilksch & Wade, 2009). Being able to assess efficacy over the longer term would be a valuable addition to future testing of the current intervention, with effects more likely to be meaningful if they are maintained.

Piloting of lessons

The timing of the development of the material (through spring and summer) meant that it was not possible to pilot test any of the individual lessons on students before conducting the randomised controlled trial. This was a limitation because piloting would have helped to reveal any practical difficulties with delivery that had not been foreseen by the development team. In practice, few logistical problems were reported by staff (the sole one being a broken YouTube link). Nevertheless, in future piloting of material is recommended to ensure that unnecessary disruptions are avoided.

Strengths of the trial

Generalizability

One of the real strengths of this study is the fact that the schools involved represent a wide range of different participants, including many from ethnic minority backgrounds as well as a range of economic backgrounds. This is of importance because it means that we can have greater confidence in the external validity of the trial: it is likely that similar results to these would be found if the trial were to be administered in other girls' secondary schools.

It is also of significance that the trial was delivered by normal school staff, not just those who self-selected in to the programme. Teachers were from a wide range of backgrounds and included males and females, those specialising in health/personal development education and those who were not specialists in this area. Although greater effects sizes would be likely if the trial had relied on highly specialised and self-selected teachers for delivery, the ecological validity arising from working with regular

school staff is a notable strength and gives greater confidence that the intervention could be translated into the normal school environment with relative ease.

Rigorous methodology

A further strength was that this trial was conducted with rigorous methodology, both in terms of the study design and the analyses used. Despite working within naturalistic school settings, the trial was able to randomise classes to receive the intervention and to include a substantial control group. Given the changes observed in the control group over time, this was essential to interpretation of the results. For example, the main effect in the primary outcome was the results of halting a decline observed in the control group. Without this comparison the conclusion would have been that no effect had been made on body esteem levels.

In addition to rigorous study design, the statistical analyses were complex, taking into account both the clinical significance of the results and the clustered nature of the data. In many instances in the eating disorder prevention literature authors make no reference to management of data clustering, even though classes have been the unit of allocation (O'Dea & Abraham, 2000; Richardson & Paxton, 2010; Wilksch & Wade, 2009). This is problematic because estimates of standard errors (on which p values are based) may be biased when clustering is ignored. Most frequently, standard errors are underestimated meaning that the likelihood of a type I error is increased. This means that the reported effect of interventions may be inflated.

Conclusions

Overall this trial tells us that the effects of *Me, You & Us* were modest but encouraging. With minimal training, teachers were able to deliver the material provided and, although there was some variability between sites, generally did this to a high standard. There were small positive effects of the intervention on body esteem, thin-ideal internalisation and self-esteem, which were significant despite the study being underpowered. Differences were noted in the fidelity, acceptability and efficacy between the three school sites that would warrant further investigation. Suggestions for future work arising from this study, as well as the other work presented in this thesis, are discussed in Chapter 6.

Chapter 6: General Discussion

Overview

The overall aim of this thesis was to develop and evaluate a universal prevention programme for eating disorders that was deliverable within UK secondary schools. A broader argument about the importance of continued work on universal prevention for eating disorders was also presented. The process was conducted within the framework of the MRC guidelines for the development of complex interventions, with a focus on combining empirical findings with qualitative explorations of contextual factors that are important for the acceptability and feasibility of delivery.

Summary of the findings

The foundation of the approach for the thesis was provided in Chapter 1, with a defence of universal prevention for eating disorders. I argued that eating disorders are good candidates for prevention as, taking into account prevalence, course and consequences, they are, in the broadest sense, costly conditions. I reviewed what was known about what works for whom in eating disorder prevention and showed that, although great progress has been made in prevention for high-risk women, there remains much to be learned about universal prevention. I also made the theoretical case for the exploration of universal prevention during adolescence despite recognising that the effect sizes for this approach would be smaller than those found in selective interventions.

In Chapter 2, I turned to risk factor research and asked whether fat talking was a causal risk factor for body dissatisfaction. This question was based on the fact that a number of prevention programmes and high-profile campaigns tacitly assume a causal association between fat talking and body dissatisfaction despite no systematic review of existing data being available to support or refute this idea. Systematic searches revealed 17 studies of interest: 12 cross sectional studies, four longitudinal studies and a single experimental study. Findings across these studies were combined through meta-analysis revealing tentative positive support for the position that fat talking is a causal risk factor for body dissatisfaction. Age moderated the cross sectional association such that the relationship was found in adolescent and adult groups but not for children.

The results of the qualitative study of this thesis are discussed in Chapter 3. Twenty-one adolescent girls participated in focus groups about their experiences of body dissatisfaction and dieting, their understanding of causal factors for these phenomena, and possible routes for prevention. These young women reported that body dissatisfaction and dieting were commonplace in schools. In line with several previous qualitative studies, sociocultural factors were at the heart of their understanding of these phenomena, with media, parents and peers all thought to play a role in those struggling with body dissatisfaction (Tiggemann et al., 2000; Wertheim et al., 1997). Students provided many practical suggestions for prevention, with a focus on the need for creating supportive environments, media literacy, and staff training. It was surprising that no mention was made of bullying interventions, as this had been the main recommendation from a previous consultation study (Haines et al., 2007).

In Chapter 4, I drew on these findings, as well as a consultation period with school staff, and reviews of causal risk factors for eating disorders, to inform the development of the intervention material. Empirical work was complemented with contextual considerations provided by school staff. This resulted in the decision to develop a six session intervention for teachers, which targeted thin-ideal internalisation, appearance conversations with peers and negative affect. The content involved media literacy along with sessions on how to overcome fat talking, boost mood and self-confidence. The content was novel in collectively targeting these different risk factors in universal prevention, and in drawing on positive psychology approaches to inform the sessions tackling negative affect within eating disorder prevention.

The intervention was subjected to evaluation in Chapter 5, where I report on the results of a clustered randomised controlled trial with 446 young women from three schools. Sixteen classes of students in years 8 and 9 were randomly allocated to the intervention or to their usual curriculum. Those receiving the intervention showed improved body esteem, thin-ideal internalisation and self-esteem compared to their peers in the control group. There were no differences between the groups in their reporting of appearance conversations with friends, or the number of students reporting high depressive symptoms, low peer support, binge eating or compensatory behaviours. The fidelity, acceptability and efficacy of the intervention varied between the three school sites.

Results from the trial were compared with previous universal interventions during adolescence. Effect sizes for this intervention were small, which was similar to other interventions, in which small-moderate effects are reported. As expected, effect sizes were generally smaller than trials where material was delivered by trained facilitators (Richardson & Paxton, 2010; Wilksch & Wade, 2009). Inconsistency in delivery and efficacy across sites had also been reported previously (Varnado-Sullivan et al., 2001), suggesting that this difficulty was not unique to the current trial.

Limitations of the studies

A number of factors limit the generalizability of the results presented in this thesis. Limitations specific to particular studies have been raised in each chapter. These included: the reliance on published studies only for the systematic review; the non-random sample used in the focus group study; the potential for control group contamination in the randomised controlled trial; and the reliance on self-report questionnaire measures. In addition, there are several limitations that span across the studies in this thesis. These are discussed below.

Participant gender

First, it is important to note that all participants in the empirical studies in this thesis were girls. It is likely that boys have distinct risk pathways (Jones & Crawford, 2005; Presnell et al., 2004), experiences and needs that were not captured by this work. Although not intended, the development of the intervention material was biased towards girls: the focus group study was conducted in a female-only school, precluding the chance to understand boys' experiences, and the majority of the risk factor literature, which formed the basis of the empirical support for the intervention, has been conducted with female samples. It is therefore unfortunate that the work conducted cannot shed light on prevention for boys.

Working solely with girls was not planned, but rather was an outcome of the recruitment process, in which girls' schools showed more interest in the project than boys' or mixed schools. This is an understandable response as the greater prevalence of eating disorders in girls means that this problem is more likely to be poignant for staff in girls' schools. The reliance on girls' schools for data collection is problematic because these types of schools make up only 9 percent of secondary schools in the UK

(Department for Education, 2011a). The extent to which these schools are representative of typical UK secondary school needs to be considered.

Sample sizes

A further difficulty with the studies reported was the sample size. The focus group study was smaller than some previous qualitative work in eating disorders (Tiggemann et al., 2000; Wertheim et al., 1997) and would have benefitted from working with more students from a wider range of backgrounds. Given the findings from the trial about the differences between schools, the importance of gaining a wider base of young people informing the intervention becomes only more salient. The randomised controlled trial had a sample size on a par with other well-conducted universal programmes (O'Dea & Abraham, 2000; Steiner-Adair et al., 2002; Wilksch & Wade, 2009). Nevertheless, given the small effect sizes of universal prevention, this study was significantly underpowered.

Strengths of the studies

There were also a number of strengths to this work, both in the overall approach and in the methodologies used. As with limitations, strengths specific to individual studies are discussed in their relevant chapters. These included: a diverse sample for the trial in terms of ethnic background and socio-economic status; working with a wide range of school staff; and the adherence to guidelines such as those presented by the MRC or CONSORT group.

Novelty in the UK school setting

It is worth noting that the thesis presents the first randomised controlled trial of an eating disorder prevention programme to be delivered in UK secondary schools. There have been very few experimentally evaluated programmes in the UK, and the few in existence have suffered from major methodological flaws, such as a lack of randomisation or control group (Baranowski & Marion, 2001; Carter et al., 1997; Stewart et al., 2001). It is hoped that the research reported in this thesis will help to invigorate high quality eating disorder prevention research in the UK.

Rigorous risk factor approach

The thesis has been underpinned by a rigorous approach to risk factor research within the framework presented by Kraemer et al. (1997). The intention was to continue the drive for conceptual clarity in risk factor research. In order to be empirically supported, the intervention development process relied on systematic reviews of risk factor research, as well as highlighting recent prospective and experimental studies of relevance to this topic. The systematic review, presented in Chapter 2, added to the current knowledge of causal risk factors for body dissatisfaction.

Range of complementary research methods

In addition, the thesis drew on a range of methodologies, including qualitative and quantitative analyses, to provide both breadth and depth to the investigations. The qualitative focus group study gave a rich form of data that allowed participants to raise novel points and to communicate their experiences and needs. The systematic review allowed for the synthesising of results across multiple studies and the drawing of firm conclusions that are likely to be generalizable and relatively free of bias. Finally, the randomised controlled trial provided a thorough assessment of the efficacy of the programme, managing complex and hierarchically-clustered data. In combination, it is hoped that these approaches provide a full and accurate response to the questions underlying this thesis.

Implications

Thinking more broadly about the impact of this work, in what follows I discuss key questions for which the data in this thesis have relevance.

Can universal interventions be a useful part of our prevention approach for eating disorders?

I argued in Chapter 1 that successful prevention is likely to consist of a mosaic of different tactics. This means that the encouraging findings from selective interventions should not be interpreted as the death knell of universal programmes. The modest but positive findings from the randomised controlled trial in this thesis suggest that universal intervention is worth continuing to explore. Based on the first efficacy trial of this intervention there were significant improvements in body esteem, thin-ideal

internalisation and self-esteem, which are encouraging signs that universal intervention can have benefits.

The counter position to consider is that there were a number of secondary outcomes for which the intervention had no effects. These included eating pathology, such as binge eating and inappropriate compensatory behaviours. The apparent lack of influence of universal intervention on eating pathology is concerning. However, other universal programmes have managed to show long terms improvements in self-reported dieting (Wilksch & Wade, 2009), laxative pill use (Austin et al., 2005), and eating disorder onset (Favaro et al., 2005), suggesting that this aim is elusive but not impossible. Further work needs to focus on improving behavioural outcomes from universal programmes to confirm their utility in their principal aim of reducing the incidence of eating disorders.

Are schools valuable sites for eating disorder prevention?

At the heart of this project is the question of whether schools are valuable sites for the prevention of eating disorders. In theory using schools offers many advantages. Teachers have access to almost all of the adolescent population at the age suitable for prevention of eating disorders, and can therefore deliver material widely through existing structures. Two pieces of evidence from this thesis add weight to view that schools are suited to this aim. First, students and staff are receptive to the idea of prevention. Second, the prevalence of eating pathology in schools is substantial.

The focus group study demonstrated that young people were very aware of problems with body dissatisfaction and eating pathology in schools, to the extent that dieting was normalised in these groups. Students produced a range of ideas for potential prevention strategies, some of which, such as media literacy, align with existing literature in this field. During the consultation period for intervention development and the delivery of the randomised controlled trial, staff were consistently keen to be involved in eating disorder prevention work in school. To some extent this may be due to the selection effects of staff taking part in the trial having a particular interest in eating disorders. However, it is worth noting that the teachers delivering the material were not those who agreed that the school would participate in the trial (which was usually done by the

deputy head teacher). As such, it is promising that these staff were receptive to idea of preventative intervention.

The prevalence estimates of eating pathology from this trial are also of concern, and suggest that intervention in this setting would be helpful. Baseline estimates using the EDDS suggested that there were two potential cases of anorexia nervosa, and six potential cases of bulimia nervosa in the sample using DSM-IV criteria. This translates to a prevalence in the sample of 0.4 percent for anorexia nervosa, and 1.3 percent for bulimia nervosa, which are almost identical to those reported by Swanson et al. (2011) in their large sample of 13-18 year old girls. In contrast, there were no potential cases of binge eating disorder in this sample, which was unexpected given the 2.3 percent prevalence found previously (Swanson et al., 2011).

Excluding those potential cases that seemed to meet full clinical criteria, 7 percent of this sample reported binge eating at least once a week, 4 percent reported vomiting to control weight, 2 percent reported using laxatives to control weight, 20 percent reported fasting and 27 percent reported excessively exercising. These figures are not dissimilar to the youngest members of the *Project EAT* cohort, of whom 48 percent reported at least one unhealthy weight control behaviour, such as fasting, 6 percent report self-induced vomiting, and 1 percent report using laxatives (Neumark-Sztainer et al., 2011). This shows that even at this young age (13 years), concerning eating practices are far from rare, and the opportunity to intervene in the school setting is an important one.

Is it feasible for teachers deliver interventions for eating disorders?

A central premise of this thesis was that universal prevention is only justifiable if there is opportunity for wide dissemination. It was also argued that teachers are in a unique position to produce this wide dissemination and so may have a crucial role to play in the development and delivery of universal interventions.

Data from this thesis provided mixed findings regarding the feasibility of this approach. As discussed in Chapter 5, recruitment of schools into the randomised controlled trial was fairly difficult, which may suggest that it is not feasible to disseminate this programme widely. That said, only one school actively refused participation in the trial (the others failed to respond) and the reason for this was that staff in the school were wary of using previously untested material. This implies that it will be easier to recruit

schools now that there is some evidence behind the intervention. It is also important to highlight that translation of this programme into usual practice would require substantially less time and planning from schools, as the main burden of the current work came from the evaluation protocol.

Feasibility of delivery from those within the trial was also mixed, with two schools able to manage the intervention manual well and one school only delivering approximately half of the planned activities. As discussed in detail in the discussion of Chapter 5, reasons for this variability are not immediately clear but this is an important question to resolve before moving forwards. The fact that staff in two of three schools performed very well suggests that, at least under certain circumstances, teacher delivery of eating disorder prevention material can be successful.

Looking more broadly at the school intervention literature may allow us to gain greater understanding of what the ‘circumstances’ are that promote successful delivery. Many factors have been highlighted as of importance for programme implementation. These include: ensuring sufficient financial support for the programme; gaining support from senior school staff; aligning the programme with policy and school priorities; improving staff perceptions of the programme in terms of its importance and effectiveness; providing a suitable quantity and quality of training; and incorporating flexibility to the programme (Forman, Olin, Hoagwood, Crowe, & Saka, 2009; Han & Weiss, 2005; Langley, Nadeem, Kataoka, Stein, & Jaycox, 2010). Further qualitative work with school staff could help to determine which of these factors were perceived as barriers to implementation in this trial. Drawing on this literature could help to improve the fidelity of future teacher-delivered prevention programmes for schools, and add weight to the view that this is a feasible approach.

Future directions

In terms of future directions for this project, it may be helpful to return to the MRC framework for intervention development introduced in Chapter 4. Figure 6.1, below, shows the diagram of key elements of this process, provided in Craig et al. (2008), and the way in which work presented here aligns with these recommendations.

Considering what has already been achieved, this thesis provides evidence towards each of the processes for *Development* and *Feasibility and Piloting*. In terms of *Development*, the evidence bases for risk factors for eating disorders and the efficacy of previous interventions were reviewed. This was conducted within the framework of sociocultural theories of eating disorders, which are well suited to the targeting of risk factors within a classroom setting. The model of change was that improvements in body dissatisfaction, and consequently eating pathology, would be driven by reductions in the causal risk factors targeted in the content.

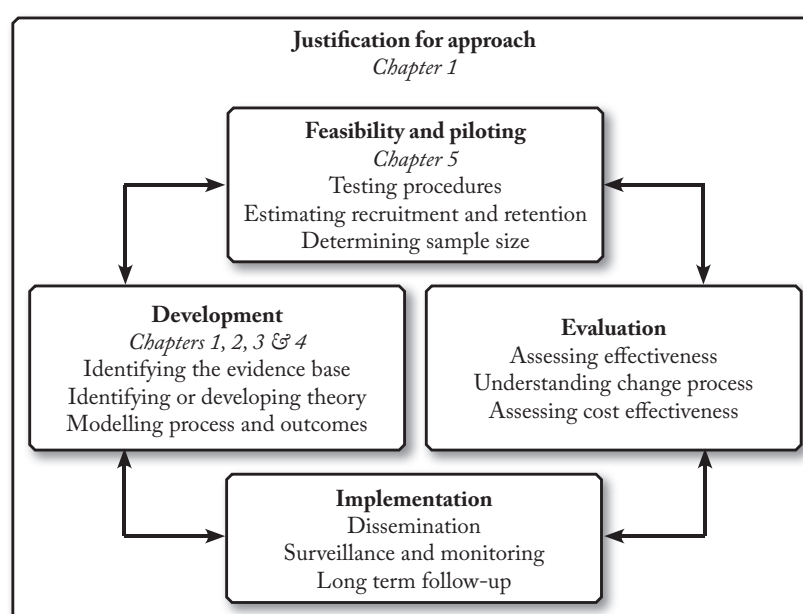


Figure 6.1: Content of the thesis within the MRC framework for the development of complex interventions (based on Craig et al., 2008).

Turning to *Feasibility and Piloting*, the randomised controlled trial allowed for the assessment of the efficacy of the intervention. In addition, it provided information on the acceptability and feasibility of the model. This included the successes of recruitment and data collection, as well as estimates of effect sizes and intracluster correlation, which can be used to produce more accurate sample size estimates in further work.

In going forward from here, four areas of development would be worthwhile, which largely fall under the *Evaluation* phase. Discussed in detail below, these are: gaining

additional qualitative input from staff and students; assessing the efficacy and effectiveness of the intervention; understanding active ingredients and change processes; and determining the cost-effectiveness of the programme.

Gaining additional qualitative input

Given the importance of teachers in the delivery of this programme, an essential next step would be to gather qualitative feedback from staff regarding their experiences delivering the material. Recommendations for improving the content could be incorporated into updated versions, as well as a focus on how to improve consistency across different school sites. As noted earlier, the teachers involved in the development were primarily from girls' schools and so gaining some feedback on the programme from teachers in mixed gender schools would help to ensure the suitability of the material for this setting. On this note, it would also be useful to conduct similar focus groups to those reported in Chapter 3 with students in mixed gender schools and specifically with boys, to confirm that the programme meets their specific needs.

Assessing efficacy and effectiveness

The immediate next step in this process would then be to conduct a fully-powered efficacy trial. Ideally this would involve mixed gender classroom settings so as to be able to assess whether the results reported here are found in typical UK secondary schools, and also whether boys benefit from the programme. Previous media literacy-based interventions have shown good outcomes for boys (Wilksch & Wade, 2009). It is therefore likely that this intervention could offer a promising tool in mixed gender settings. In order to reach the required sample size, approximately seven schools would need to be included in the trial (assuming 120 students per year group). It would be beneficial if greater attention were given to fidelity assessment in this trial, with the staff that are delivering both intervention lessons and control lessons providing feedback on the material that was covered. This could take the form of self-report or of audio recordings of lessons.

If results from the second efficacy trial were promising, then evaluation could progress to an effectiveness trial, in which the programme was delivered in a wide range of school settings with minimal input from the research team. The step from efficacy to effectiveness is not as great for this intervention as for those interventions that are

initially trialled with facilitators and then delivered by teachers. Nevertheless, an indication of whether the programme would function if it were more widely disseminated is a vital step. This is especially the case given the variation between sites observed in the current trial. A focus should be on how to balance flexibility in the programme (which would aid in delivery across diverse sites) whilst maintaining fidelity to the essential features.

Understanding active ingredients and change processes

Alongside efficacy assessments, a dismantling study would allow for the identification of the ‘active ingredients’, which drive change in the intervention. The pattern of findings across the primary and secondary outcomes observed in this trial allow us to make some speculations about which content is important. We would expect that the media literacy lesson would influence internalisation scores, that the peer-focused lessons would influence peer-related factors, namely appearance conversations and peer support, and that the positive psychology lessons on happiness and well-being would influence self-esteem and depressive symptoms.

Significant effects of the intervention in the current trial suggest that the media literacy lessons were contributing to the outcomes and that, to some extent at least, the happiness and personal strengths lessons were also of importance. In contrast, lessons three and four, focusing on peer interactions, do not seem to have had the expected effects. This assumption, however, does not take into account the fact that the various outcomes are unlikely to be independent of each other, such that changes in self-esteem may, for example, be the result of ‘down-stream’ effects of reduced thin-ideal internalisation.

A dismantling study could help to confirm or refute these speculations about core components of content. This would involve delivering isolated elements of the intervention to different groups in order to determine which activities are the active ingredients driving any changes. Hypothesised change processes could be tested through mediation analyses, and provide further understanding of why the intervention works. A major advantage of conducting a dismantling study would be that potentially the intervention could be shortened with minimal effects on efficacy. This would either make the intervention quicker to deliver or would open up the opportunity to deliver

alternative material targeting those outcomes that were not affected by the current programme.

Determining cost-effectiveness

On development of a final version of the intervention that demonstrated efficacy and effectiveness, a cost-effectiveness analysis would help to determine whether universal prevention of this form could be justified. The intervention could either be compared to usual care (i.e. no intervention), or could be directly compared to another eating disorder prevention programme. This would involve estimating the direct and indirect costs of the intervention (costs of producing the resources, training days, travel expenses, time taken to participate, and so forth), the costs of the usual care or comparison intervention and estimating the benefits to participants in terms of their health and well-being. Typically the benefits would be standardised into a measure such as quality adjusted life years (QALY). This allows for the effects of different interventions to be directly compared. In the UK, the National Institute for Health and Clinical Excellence (NICE) suggests that an intervention may be deemed cost-effective if it provides one quality adjusted life year for less than £20,000 - £30,000 (National Institute for Health and Clinical Excellence, 2010). As noted throughout this work, because the effect sizes from universal interventions tend to be small, universal intervention is only likely to reach this 'cost-effectiveness threshold' if the costs of delivery can be kept to a minimum. This is a point worth bearing in mind throughout ongoing development phases.

Overall conclusions

The central aim of the work presented in this thesis was to develop and evaluate a universal prevention programme for eating disorders, designed to be widely disseminable by usual school staff. In order to achieve this aim, an exploration of the rationale for universal prevention was provided and causal risk factors for eating disorders were reviewed. I then described the process of intervention development, which involved collaborating with key stakeholders, such as school staff, in order to produce material that was suited to the context of UK secondary schools whilst being based firmly in rigorous risk factor research. The thesis goes on to report on the first randomised controlled trial of an eating disorder prevention programme in the UK,

with promising results across a number of risk factors. Further pursuit of universal prevention for eating disorders in secondary schools would be valuable, and could be used to complement the successes of selective interventions in this field.

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Appendices

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Appendix A: Ethical approval confirmation letters

A.1: Ethical approval confirmation for study reported in Chapter 3

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Helen Sharpe
Institute of Psychiatry
Section of Eating Disorders
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26 October 2010

Dear Helen,

PNM/10/11-8 Focus groups examining the influence of friends on eating and body satisfaction during adolescence.

Thank you for sending in the amendments requested to the above project. I am pleased to inform you that these meet the requirements of the PNM RESC and therefore that full approval is now granted with the following proviso:

1. All new documentation, such as approach letters, are submitted to the Chair of the PNM RESC for approval.

Please ensure that you follow all relevant guidance as laid out in the King's College London Guidelines on Good Practice in Academic Research (<http://www.kcl.ac.uk/college/policyzone/index.php?id=247>).

For your information ethical approval is granted until 26 October 2011. If you need approval beyond this point you will need to apply for an extension to approval at least two weeks prior to this explaining why the extension is needed, (please note however that a full re-application will not be necessary unless the protocol has changed). You should also note that if your approval is for one year, you will not be sent a reminder when it is due to lapse.

If you do not start the project within three months of this letter please contact the Research Ethics Office. Should you need to modify the project or request an extension to approval you will need approval for this and should follow the guidance relating to modifying approved applications: <http://www.kcl.ac.uk/research/ethics/applicants/modifications.html>

Any unforeseen ethical problems arising during the course of the project should be reported to the approving committee/panel. In the event of an untoward event or an adverse reaction a full report must be made to the Chairman of the approving committee/review panel within one

week of the incident.

Please would you also note that we may, for the purposes of audit, contact you from time to time to ascertain the status of your research.

If you have any query about any aspect of this ethical approval, please contact your panel/committee administrator in the first instance (<http://www.kcl.ac.uk/research/ethics/contacts.html>). We wish you every success with this work.

With best wishes

Yours sincerely

James Patterson - Senior Research Ethics Officer

For and on behalf of
Professor Gareth Barker, Chairman
Psychiatry, Nursing & Midwifery Research Ethics Subcommittee

Cc Ulrike Schmidt

A.2: Ethical approval confirmation for study reported in Chapter 5

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03 May 2011

Dear Helen Sharpe

PNM/10/11-96 Evaluation of 'Me, You and Us': a school-based eating disorder prevention programme.

Thank you for sending in the amendments requested to the above project. I am pleased to inform you that these meet the requirements of the PNM RESC and therefore that full approval is now granted with the following provisos:

1. Once the schools taking part in the study are confirmed, submit the names and addresses of these to the Research Ethics Office for record.
2. We note that once permission letters have been obtained these will be submitted to the Research Ethics Office for record.

Please ensure that you follow all relevant guidance as laid out in the King's College London Guidelines on Good Practice in Academic Research (<http://www.kcl.ac.uk/college/policyzone/index.php?id=247>).

For your information ethical approval is granted until **03 May 2013**. If you need approval beyond this point you will need to apply for an extension to approval at least two weeks prior to this explaining why the extension is needed, (please note however that a full re-application will not be necessary unless the protocol has changed). You should also note that if your approval is for one year, you will not be sent a reminder when it is due to lapse.

If you do not start the project within three months of this letter please contact the Research Ethics Office. Should you need to modify the project or request an extension to approval you will need approval for this and should follow the guidance relating to modifying approved applications: <http://www.kcl.ac.uk/research/ethics/applicants/modifications.html>

Any unforeseen ethical problems arising during the course of the project should be reported to the approving committee/panel. In the event of an untoward event or an adverse reaction a full report must be made to the Chairman of the approving committee/review panel within one week of the incident.

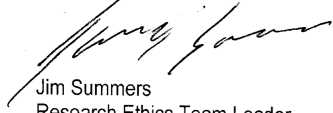
Please would you also note that we may, for the purposes of audit, contact you from time to time to ascertain the status of your research.

If you have any query about any aspect of this ethical approval, please contact your panel/committee administrator in the first instance (<http://www.kcl.ac.uk/research/ethics/contacts.html>). We wish you every success with this work.

www.kcl.ac.uk

With best wishes

Yours sincerely

A handwritten signature in black ink, appearing to read "Jim Summers", written over the printed name.

Jim Summers
Research Ethics Team Leader

c.c. Professor Ulrike Schmidt

Appendix B: Topic guide for focus groups

Body image and appearances in school

- Would you say that appearances and looking good are important for students in your school? How can you tell?
 - Prompts: Are there conversations about these things? Do people make comments about each other's appearance? Are these positive or negative?
- How do you think it affects students if appearances are really important in their group of friends? What are the positive effects? And what things are not so good?
 - Prompts: Think of effects in terms of how they think, feel and act.

Dieting and weight control in school

- Do many students at school go on diets? Why do you think they are dieting? What effect do you think this has on them and their friends?
 - Prompts: What things are positive? And what things are not so good? Think of effects in terms of how they think, feel and act.
- Do you know if students use any other methods to control their weight? What effect do you think these have on them and their friends?
 - Prompts: What things are positive? And what things are not so good? Think of effects in terms of how they think, feel and act.

What can be done to help?

- What do you think can be done to make young people feel more positively about their appearance growing up?
 - Prompts: Are there things that would be particularly helpful or particularly unhelpful? What experiences of these sorts of things have you had in school already. Where they helpful?

Appendix C: Content of previous universal interventions

C.1: Content of Media Smart (Wilksch & Wade, 2009). Provided by Wilksch through personal communication.

MEDIA SMART PROGRAM OVERVIEW

Lessons/ Main Topics	Key Features
1. Stereotypes: We are not all the same	<ul style="list-style-type: none"> • Define stereotypes • Examine magazines for advertisements that stereotype men, women and lifestyle • ‘Send-up’ these advertisements/stereotypes • “Does advertising effect how we think about men and women?” • “Are there famous people who don’t fit these stereotypes?”
2. Media advertising: What tactics are used?	<ul style="list-style-type: none"> • DVD showing: 4 / 40, 000 women are selected to be fashion models • DVD showing: even these women aren’t ‘good enough’ how they naturally appear – show padded bras/briefs, tape, pegs etc • PowerPoint presentation of airbrushing (before and after shots) • “Why might advertisers want us to be unhappy with how we look?” • “Is it worth our efforts to attempt to look like computer-enhanced images we see in the media?”
3. Pressure: Who places pressure on us and what can we do about it?	<ul style="list-style-type: none"> • Examine pressures from media, family, friends • “What can we do to handle pressure placed on us?” • DVD on handling peer pressure (teen drinking) • Exercise: What qualities do we admire in ourselves? • “What can we do to make sure we don’t place too much pressure on others?”
4. Pressure: Looking after ourselves and our peers	<ul style="list-style-type: none"> • Role-plays: responding to negative comments/teasing • Role-plays: How would you help somebody who is younger than you, not get sucked into the media’s pressure to worry about looks? • What are the secrets to feeling good about yourself? • Standing up for yourself
5. Putting pressure on the media: Praising the good and protesting the bad	<ul style="list-style-type: none"> • “Consumer activism: what does it mean?” • Brainstorm possible ways to engage in activism • Strategies for effective activism – we can make a difference! • PowerPoint presentation of healthy/unhealthy advertisements • Email either praise or protest letters to advertisers who convey healthy/unhealthy messages.
6 & 7. Is advertising harmful: What do you think?	<ul style="list-style-type: none"> • Preparation of a media awareness presentation addressing the question “Is advertising harmful?” • Small group work on selected medium, such as poster, short play, debate, PowerPoint presentation etc • Students given 1st lesson to prepare and 2nd lesson to present. • Brief discussion on giving constructive feedback • Students to give feedback to each group • General discussion of concepts raised in each presentation
8. Where to from here? (Bringing it all together)	<ul style="list-style-type: none"> • Feedback from emails to advertisers • Propose alternatives to negative media messages • How to deal with “I know it’s fake but I still want to look like it” • “What does it all mean at a personal level?”

C.2: Content of Aesthetic Model Criticism and Media Literacy Program. Taken from Raich et al. (2008).

TABLE 1 Contents of Each of the Components in the Preventive Program

Nutrition (NUT)
<ul style="list-style-type: none"> • Definition of balanced eating • Definition and differentiation between nutrition and eating • Nutrients • Food Pyramid and foods • Water • Analysis of menus: <ul style="list-style-type: none"> • Balanced menu • Excessive fat menu • Excessive protein menu • Excessive carbohydrate menu • Final Recommendations
Aesthetic Model Criticism (AMC)
<ul style="list-style-type: none"> • Beauty throughout history: <ul style="list-style-type: none"> • The canon of beauty proposed by the Greeks • Beauty through art • Beauty through fashion (history of the bathing suit) • Recent changes in the criteria for beauty: <ul style="list-style-type: none"> • The Marilyn icon • The Barbie icon • Drastic changes in sizes for models • Beauty in the world: <ul style="list-style-type: none"> • The deformed feet of Chinese women • The “giraffe-women” of Burma • The extremely obese women of Mauritania • The thinness of the West
Media literacy (ML)
<ul style="list-style-type: none"> • Analysis of advertising messages and transmission of values: <ul style="list-style-type: none"> • Message 1: Association between perfection, thinness, success and happiness • Message 2: You have the body that you want • Message 3: There are means to obtain the body that you want • What advertising hides from us: • Real effectiveness of diets and their effects • “Nothing is as it seems” (example of a nonexistent ideal) • Manipulation of advertisements (fragmentation, make-up techniques, touch ups, etc.) • Economic interests that lie behind the beauty industry • Questioning the automatic association between beauty and happiness • Real women: a variety of sizes.

C.3: Content of Happy Being Me. Taken from Richardson & Paxton (2009)

TABLE 1. An outline of the aims, content, and processes involved in *Happy Being Me*

Aims	Content	Processes
Session One		
To increase media literacy	The different techniques that can be used by the media to manipulate images (Media images are not real)	Group worksheets and class discussion
To reduce internalisation of the thin-ideal	The media's emphasis on attractiveness as a measure of success Appearance does not equal how valuable you are The 'ideal body' differs across time and between cultures	Class activity and discussion Individual brainstorming and class discussion Handouts, homework reading and class discussion
Session Two		
To educate on appearance conversations	Exploration of the impact of fat-talk and teasing	Didactic presentation, individual brainstorming and class role plays
To highlight the impact of fat-talk and appearance teasing	Exploration of strategies that could be used during situations that involve fat-talk or appearance teasing	Group worksheets and role plays
To develop skills for situations involving fat-talk or teasing		
To reduce fat-talk and appearance teasing		
Session Three		
To educate on body comparison	Introduction to body comparison and its negative consequences	Slide show presentation and individual worksheets
To increase skills at identifying body comparisons	Exploration of strategies that could be used instead of body comparisons (Do not fall into the comparison trap)	Small group activity and class discussion
To highlight the consequences of body comparisons	Media's manipulation of images	Film clip presentation and class discussion
To develop skills in avoiding body comparisons	Emphasis on positive qualities that are not to do with appearance	Individual worksheets and activities in pairs
To revisit the media's manipulation of images	Review sessions	Slide show presentation and class discussion
To highlight positive qualities that are not associated with appearance		
To review the program		

C.4: Content of *Everybody's Different*. Taken from O'Dea & Abraham (2000)

Table 1. An outline of the Everybody's Different program

Lesson 1: Dealing with stress
Relaxation tape. Ways of dealing with stress. Feeling good in your body.
Lesson 2: Building a positive sense of self
Building your self-esteem. Identifying your unique features and self-image and how it might be destroyed.
"I am OK" self-esteem-building activity.
Lesson 3, 4, 5: Stereotypes in our society
Collage posters of stereotypes. Male and female stereotypes.
Being an individual—being yourself. Learning to accept and value differences.
Lesson 6: Positive self-evaluation
Exploring individuality. What is unique about you?
Self-advertisement activity. Learning to value uniqueness.
Lesson 7: Involving significant others
Ways of improving your self-image. Receiving positive feedback from others. Hand outline activity.
Learning to seek positive feedback from significant others.
Lesson 8: Relationship skills
How other people affect our self-image. Dealing with relationships. Video of self-esteem. Role plays.
Lesson 9: Communication skills
Games and activities to build self-esteem.
Pictionary game. Program evaluation by students and teachers.

Note: Everybody's Different (O'Dea, 1995) is an educational program focusing on self-esteem development and designed for delivery in a cooperative classroom by teachers. Each lesson is approximately 50–80 min with additional home-based activities such as family discussion of lessons and positive parental input.

C.5: Content of *Every Body is a Somebody*. Taken from McVey, Davis, Tweed & Shaw (2004).

Table 1. Every body is a somebody curriculum

Week 1: media influences
Unrealistic "ideal" body shapes portrayed in the media and how these images are related to girls' perception of themselves, as well as the various methods that the media employ to create a "perfect" image of beauty.
Week 2: enhancing self-esteem and body image
Ways to promote positive self-esteem and body image, including ways to lower the importance placed on physical appearance as a sole barometer for self-worth.
Week 3: body size acceptance
Genetic influences on body shape, the negative effects of shifting an individual's weight beyond the natural weight range, and acceptance and awareness of individual differences in body shape and size.
Week 4: healthy living
A nondieting approach to healthy eating and active living.
Week 5: stress management
Stress management techniques that focus on assertive styles of communication and social problem-solving strategies to help attenuate the negative influences of stress on body image concerns.
Week 6: positive relationships
Identifying healthy versus unhealthy relationships, applying problem-solving strategies to issues related to peer relations and negative comments about weight and shape.

C.6: Content of *The Body Project*. Taken from Stice & Presnell (2007).

Challenging Fat Talk (10 minutes)

We've spent a lot of time discussing obvious pressures to be thin that we encounter on a regular basis from the media, friends, and family members. However, we often do not notice some of the more subtle ways the thin ideal is maintained. Can you think of some ways you (or others) might be promoting the thin ideal without even knowing it?

Possible answers include complimenting others on weight loss, joining in when friends complain about their bodies, debating the merits of fad diets, and gossiping about celebrities who are overweight.

Ask group members to open their workbooks to the Fat Talk List, a list of common things we or others often say regarding the thin ideal. **Important note:** Please do *not* have students read any of the Fat Talk statements out loud!

Fat Talk List

1. I'm so fat.
2. I need to lose ten pounds.
3. Do I look fat in this?
4. You think you're fat? Look at me!
5. Gee, you look great. Have you lost weight?
6. I can't eat that—it will make me fat.
7. I'm way too fat to be eating this.
8. I'm too fat to get into a bathing suit.
9. She's too fat to be wearing those pants.
10. She's a little bit too heavy to be dating that guy.
11. You're so thin, how do you do it?
12. Can you believe how much she's let herself go?
13. I've really been doing well on this diet, you should try it.
14. You'd be so pretty if you lost weight.
15. Wow, look at the big butt on that girl!

After students have reviewed the list, engage in a group discussion about the statements. Some questions to ask are:

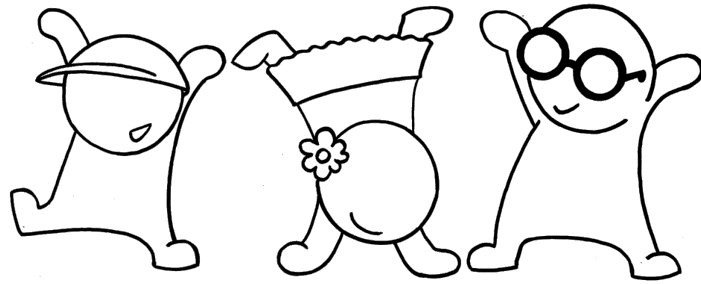
How do these statements keep the thin-ideal going?

What can you say to stop this sort of talk? Or, how can you change the subject?

How do you think changing the way you talk about your body might impact how you feel about your body and how others respond to you?


Many participants are aware of how negative comments can impact body image, but they have not considered that even seemingly positive statements can reinforce the thin ideal. Try to help participants become more aware of the ways in which they can begin to promote more healthy attitudes about their bodies. Discuss how they may alter their language to be more positive or neutral.

Appendix D: Facilitator's Guide



Me, You & Us

Facilitator's Guide



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Acknowledgements

This work was supported by a grant from the NIHR Biomedical Research Centre for Mental Health, South London and Maudsley NHS Foundation Trust and Institute of Psychiatry, King's College London.

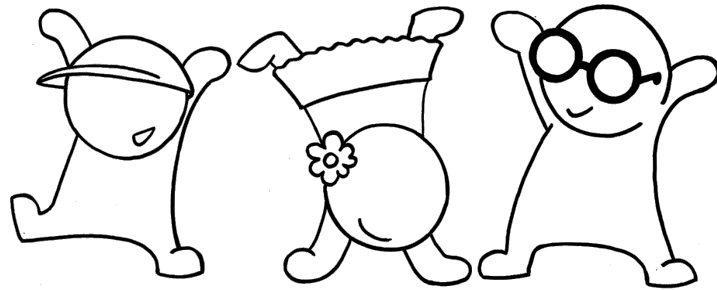
This work is part of independent research commissioned by the National Institute for Health Research (NIHR) under its Programme Grants for Applied Research scheme (RP-PG-0606-1043). The views expressed in this publication are those of the author(s) and not necessarily those of the NHS, the NIHR or the Department of Health.

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Background

- **About eating disorders**
- **Outline of the programme**
- **Evaluating the programme**

About eating disorders

Me, You & Us aims to prevent the onset of eating disorders in UK secondary schools. Before delivering this intervention it may be useful for you to know a little bit about eating disorders, including signs, symptoms and risk factors.

Types of eating disorders

There are several different types of eating disorders. The most well known of these disorders are **Anorexia Nervosa** (AN), where people eat very little and have an intense fear of gaining weight, and **Bulimia Nervosa** (BN), where people will alternate between binge eating (eating a lot of food very quickly) and then compensating in some way, such as by making themselves vomit or using laxatives. The diagnostic criteria for AN and BN are shown to the right.

Although AN and BN are the most well known eating disorders, around a third of patients do not meet the strict criteria for either of these conditions. For example, a person may show all the symptoms of AN but continue to have her periods (criterion D) or still be within a normal weight range (criterion A). In these cases, patients are diagnosed with an atypical eating disorder, which is called an **Eating Disorder Not Otherwise Specified** (EDNOS).

One of the most common types of atypical eating disorders involves regular binge eating without using any compensatory behaviour and is known as **Binge Eating Disorder** (BED). As people with Binge Eating Disorder consume a large amount of food, this problem is associated with being overweight or obese.

Prevalence of eating disorders

It is very difficult to estimate how many people in the population at any given time are suffering from an eating disorder. For many different reasons people may hide their problems from friends and family and may never seek help from medical professionals.

We do know that AN and BN are most common in adolescent girls. Approximately 0.4% adolescent girls suffer from AN and 1.5% adolescent girls suffer from BN. In addition, around 3% girls suffer from EDNOS. This means that in an average secondary school (500 girls, 500 boys), it is likely that around **2 girls will suffer from AN, around 7-8 girls will suffer from BN and around 15 girls will suffer from EDNOS**. That said, it is not at all uncommon for boys to develop eating disorders; around 5-10% patients are male and increasing attention is being paid to problems with weight, shape and eating that may be more specific to boys (such as compulsive exercising). In addition to these figures, there will be additional children with milder forms of eating disorders.

About eating disorders

Anorexia Nervosa

- A. A refusal to maintain **body weight** at or above a minimally normal weight for age and height (e.g. weight loss leading to a maintenance of body weight less than 85% of that expected, or failure to make expected weight gain during period of growth, leading to body weight less than 85% of that expected).
- B. Intense **fear of gaining weight** or becoming fat, even though underweight.
- C. **Disturbance** in the way in which one's body weight or shape is experienced, undue influence of body weight or shape on self-evaluation, or denial of the seriousness of the current low body weight.
- D. In postmenarcheal females, **amenorrhoea**, i.e., the absence of at least three consecutive menstrual cycles. (A woman is considered to have amenorrhoea if her periods occur only following hormone, e.g. oestrogen, administration.)

Bulimia Nervosa

- A. Recurrent episodes of **binge eating**. An episode of binge eating is characterized by both of the following:
1. Eating, in a discrete period of time (e.g. within any 2 hour period), an amount of food that is definitely **larger than most people would eat** during a similar period of time and under similar circumstances.
 2. A sense of **lack of control** over eating during the episode (e.g. a feeling that one cannot stop eating or control what or how much one is eating).
- B. Recurrent inappropriate **compensatory behaviour** in order to prevent weight gain, such as self-induced vomiting; misuse of laxatives, diuretics, enemas or other medications; fasting; or excessive exercise.
- C. The binge eating and inappropriate compensatory behaviours both occur, on average, at least twice a week for 3 months.
- D. **Self-evaluation** is unduly influenced by body shape and weight.
- E. The disturbance does not occur exclusively during episodes of Anorexia Nervosa.



About eating disorders

Binge Eating Disorder

- A. Recurrent episodes of **binge eating**. An episode of binge eating is characterised by both of the following:
1. Eating, in a discrete period of time (e.g., within any 2-hour period), an amount of food that is definitely **larger than most people would eat** in a similar period of time under similar circumstances.
 2. A sense of **lack of control** over eating during the episode (for example, a feeling that one cannot stop eating or control what or how much one is eating).
- B. The binge-eating episodes are associated with three (or more) of the following:
1. Eating much more **rapidly** than normal
 2. Eating until feeling **uncomfortably full**
 3. Eating large amounts of food when not feeling physically **hungry**
 4. **Eating alone** because of feeling embarrassed by how much one is eating
 5. Feeling **disgusted** with oneself, depressed, or very guilty afterwards
- C. Marked **distress** regarding binge eating is present.
- D. The binge eating occurs, on average, at least once a week for three months.
- E. The binge eating is not associated with the recurrent use of inappropriate compensatory behaviour (e.g., purging) and does not occur exclusively during the course of Bulimia Nervosa or Anorexia Nervosa.

About eating disorders

As with most mental disorders there are no single causes of eating disorders. It is generally accepted that these conditions are brought on by a combination of factors. For this reason we tend to talk about risk factors for eating disorders; we cannot say that particular factors cause eating disorders but we can say that they increase the chance that people may develop these conditions.

Risk factors for eating disorders

Research into understanding risk factors for eating disorders is in relatively early stages. However, we are starting to understand what things are associated with developing eating disorders, some of which are listed below:

- Being female
- Family history of eating disorders or obesity
- Perfectionist, anxious or obsessive personality
- Low self esteem
- Being very concerned with weight and shape
- Strict dieting
- Difficulty in family relationships
- Lack of a strong social support network
- Experience of abuse or other adverse life events
- Genetic vulnerability



About eating disorders

Having daily contact with students during adolescence, teachers may be amongst the first people to notice that a young person may be having a problem with body image or eating. However, we know that most secondary school teachers are not confident at knowing the signs and symptoms to look out for.

Identifying eating disorders in schools

- Distancing from friends
- Poor concentration in school work
- Seeming to follow rituals when eating, such as cutting food into small pieces
- Having strict rules about 'good' and 'bad' foods
- Refusing to eat with others, for example in the canteen at lunchtime
- Liking to help in the kitchen at home or to cook in cookery lessons, but avoids tasting or eating
- Disliking visits or parties (because of the "obligation" to eat).
- Excessive exercising
- Frequent visits to the bathroom after meals
- Complaining of feeling cold
- Dramatic weight loss or weight gain
- Claims to be too fat in spite of weight loss
- Red or calloused knuckles (although this is rare)
- Swollen salivary glands, giving mumps-like appearance

Things to remember

- Take any concerns from friends seriously
- There can be a problem even if the student hasn't lost a lot of weight
- Students may deny having a problem if confronted specifically about eating; it may be best to raise concerns generally about their well-being

Outline of the programme

The Me, You & Us intervention aims to prevent the onset of eating disorders in secondary school students and to help to reduce problems with weight, shape and eating in students. It has been designed by a team of researchers from the Section of Eating Disorders in the Institute of Psychiatry, King's College London. The material has been reviewed by a panel of young people, people with eating disorders and teachers.

The programme is suitable for students in years 8 and 9 and can be delivered as part of PSHE or another similar area in the curriculum. There are six 50 minute sessions, which should be delivered in consecutive weekly or fortnightly lessons. In addition, two extra lessons (one at the beginning and one at the end) are needed to complete questionnaires.

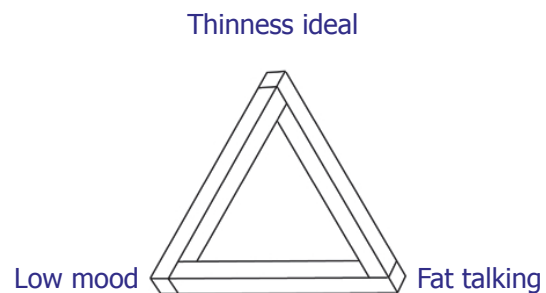
The intervention targets three different areas of risk:

- Societal level risk
- Peer group risk
- Individual risk

	What Me, You & Us targets...
Societal risk	Internalisation of media ideal of thinness
Peer group risk	Fat talking with friends
Individual risk	Low mood and anxiety

These three areas of risk are all connected. For example, low mood may drive fat talking with friends. An internalisation of an unachievable ideal may promote a low mood.

In targeting these factors in combination, we hope to make students happier, healthier and more confident as they grow up.



Media Literacy

Why media literacy?

The first two lessons of the programme focus on media literacy, specifically the ability to **think critically about images of beauty presented in the media**. We have chosen to include media literacy as an element of the prevention programme because we know that exposure to the ideals of thinness presented in the media can be associated with body dissatisfaction and eating disorders.

For example:

- Large studies with adolescents have shown that watching more television, and reading **fashion magazines** is correlated with body dissatisfaction and problems with eating.
- Some adolescents are **particularly vulnerable**. For example, reading a fashion magazine for a year is associated with a rise in body dissatisfaction, low mood and dieting, but only for girls initially experiencing body dissatisfaction and poor social support.
- Three years after **television** was first introduced to the islands of Fiji rates of disordered eating were significantly greater than prior to the introduction of mass media to this population.
- The **ideal body shape presented in the media has become thinner** over the course of the twentieth century. For example, Marilyn Monroe was a size 12, whereas Kate Moss is a size 6. The average fashion model is now thinner than 98% of women.

Previous studies have shown that helping adolescents to think critically about portrayals of beauty in the media can be useful in preventing body dissatisfaction and potentially also preventing eating disorders.

An important caveat

Although we know that the media may play a role in the development of some eating disorders, it is important to remember that **eating disorders are not caused by the media and fashion industries**. Rather, adolescents who are at risk for developing eating disorders for all sorts of reasons, such as personality traits, family history and other difficulties in life, may be particularly susceptible to images of ideal beauty presented in the media.

Fat talking

Fat talking refers to **ritualised interactions** between friends in which derogatory appearance related comments are made about yourself or others. For example, gossiping that someone has lost or gained weight, or commenting on someone's ability to wear different clothes based on their weight. A typical example of a self-derogatory exchange would be: "Urgh. I'm so fat"/"You? Fat? You're so skinny! I wish I were as skinny as you". We should keep in mind that fat talking can also take the form of a '**poisoned compliment**', such as saying something like "You look great! Have you lost weight?".

What is fat talking?

These sorts of interactions between friends are very common during adolescence and can focus around different aspects of appearance, such as having long legs, having a beautiful face, etc. Although we are focusing on friends, these interactions may also happen in other areas of a young person's life, such as with parents or siblings.

Fat talking can be very noxious for friendship groups. Research following adolescent girls over time has shown that high levels of fat talking predict a drop in body satisfaction a year later. Girls who fat talk go on to be more likely to **compare themselves to others** and consequently to feel less satisfied with their own appearance (Jones, 2004).

Consequences of fat talking

The effects of fat talking are widespread and can include the speaker, the receiver and others who are observing. Even self-derogatory statements can spread body dissatisfaction to others; the hidden message of this fat talking is one of putting others down ("if she thinks she's fat, what am I?"), and of determining the social hierarchy on the grounds of appearances. In this way fat talking is **subtly aggressive** and creates a friendship culture in which explicit degradation of yourself or others is needed for acceptance.

An important thing to keep in mind is that in aiming to stop fat talking we are not advocating stopping any reference to weight and shape in conversation. Rather, the aim of these lessons is to raise the issue of fat talking with students, to explore how these everyday interactions may be harmful, and to give students techniques for **breaking the cycle of fat talking** with their friends.

Stopping fat talking



Strengths & happiness

Why strengths and happiness?

The final two lessons of this intervention aim to tackle **low mood and anxiety** in students. We have chosen to include these lessons because we know that very often eating disorders are associated with problems with depression and anxiety. Indeed, many patients with eating disorders will often have an additional diagnosis, such as that of depression.

There are many approaches to combating low mood. We have chosen to focus on personal strengths and promoting happiness because these can be relevant for all students (not just those who are feeling blue) and can help to create a **fun and uplifting environment** in the classroom.

Research from positive psychology has shown that:

- Well-being and happiness is associated with all sorts of **benefits**, including success, health and longevity.
- Our individual well-being levels are driven by **many different factors**, including genetics, upbringing, environment and relationships.

Promoting well-being and flourishing

The '**positive psychology**' movement has been promoting the importance of focusing on strengths, positive emotions and well-being, and has demonstrated that interventions aiming to reveal personal strengths, and boost well-being levels can be effective in reducing depression in school children.

Simple exercises have been shown to promote well-being, such as:

- Noting **three good things** that happen each day and considering why they happened.
- Learning about your **personal strengths** and using them in difficult situations.
- Practising psychological techniques that help build **optimistic thinking**.
- Taking the time to **thank people** who have helped us.

Evaluating the programme

Me, You & Us is a new schools-based intervention for the UK. This means that it is important to carry out a thorough evaluation of any effects of the programme. This evaluation consists of comparing changes in attitudes and behaviours in students who receive the classes to those who have the curriculum as usual.

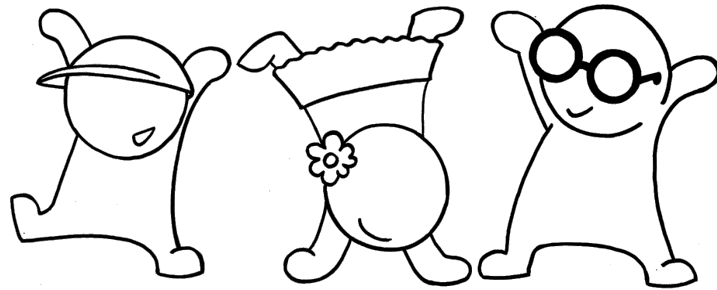
Study design

- In order to adhere to the Data Protection Act 1998, all students taking part will need a **signed parental consent** form. These forms will be provided by the researchers and can be emailed or sent home to parents. Any student without a consent form will not be able to take part in the study. Once consent forms have been gathered, these should be returned to the researcher. We can organise for them to be picked up or couriered from the school.
- Half of students in a year group will be given the lessons (the '**intervention group**'), and half of students will be given the curriculum as normal (the '**control group**'). Students in the control group may receive the lessons in the third term of the year, in the next academic year, or not at all.
- All students will be given **questionnaires** to complete before the lessons start, after the final lesson, and around three months later. These questionnaires will be delivered to the school ahead of the study. Students will be assigned a participant number, which means that their responses will be anonymous. Before completing the first questionnaires, students will also be asked to sign an assent form to confirm that they want to take part in the study.



Evaluation Checklist

June 2011	<p>Head teacher signs permission letter for the study to take place in the school.</p> <p>Lists of students in participating classes are given to the researcher so that participant packs can be compiled.</p>
June/July 2011	Teachers receive training day and receive copies of the Facilitators' Guide.
July or Sept. 2011	Parental consent forms are sent to parents and collected at the school. It may be helpful to do this before the summer break, so that the intervention can begin immediately in the new academic year.
Sept. 2011	Students sign assent forms and pre-intervention questionnaires are completed. This should take no more than 45 minutes.
Sept. – Dec. 2011	Six lessons of Me, You & Us are delivered to the students in the intervention group. Students in the control group receive the curriculum as normal.
Dec. 2011 or Jan. 2012	<p>Post-intervention questionnaires are completed by all students. This should take no more than 45 minutes.</p> <p>Staff and students are invited to attend focus groups to discuss their experiences of the programme.</p>
April or May 2012	Follow up questionnaires are completed by all students. These must be completed before the control group students receive the Me, You & Us lessons.



Programme Content

- **Lessons 1 & 2: Media literacy**
- **Lessons 3 & 4: Fat talking**
- **Lessons 5 & 6: Personal strengths & happiness**

Media Literacy I

Overview

In this lesson we focus on how we define being beautiful and how our ideas about beauty are shaped by images in the media, such as newspapers, magazines and on television. The lesson concludes with a group discussion about how images of beauty in the media may affect how young people feel about the way they look.

Learning objectives

- Students to explore where ideals of beauty come from
- Students to explore different ideals of beauty from around the world

Preparation

- Students can bring in magazines to be cut up in the first activity. This is not essential as a collection of images from magazines will be provided in the teacher pack.

Outline

- What is beautiful?
- Beauty around the world
- Sources of beauty ideals
- Media images and body confidence

Materials needed

- Powerpoint presentation: Media Literacy I
- Student workbook
- Teen magazines images (from teacher pack)

Time required

- 50 minutes

Lesson plan

Starter

- What is beautiful?: Activity A1 (10 mins)

Introduce the aims of the lesson. Students to complete the workbook activity. Students to select two pictures (ideally one male, one female) of beautiful people from the magazines and then to think about why they selected those pictures. Ask students to feed back their ideas to the class. Encourage students to think about whether everyone had similar ideas or if there were differences.

Development

- Beauty around the world: Powerpoint (10 mins)

Leading on from students' ideas of beauty from the starter exercise, go through slides of beauty around the world. For each slide ask a student to volunteer what they consider to be beautiful. Then discuss the example from the other culture. See Teacher Resources for details on the photographs provided.

- Sources of beauty ideals: Activity A2 (10 mins)

Students to complete the workbook activity. After ~5 mins ask students to share their ideas with the class. If you have the facilities, create a mindmap of the ideas (either on a board, or typed into the powerpoint).

- Media images and body confidence: Class discussion (15 mins)

Lead a group discussion on the topic of whether images of beauty in the media affect young people's body confidence. See Teacher Resources for information that may be useful in leading this discussion.

Plenary

- Review: Powerpoint & Activity A3 (5 mins)

Go through powerpoint slide outlining what has been covered. Students to complete the workbook activity listing three good points raised during the group discussion.



Media Literacy I

Beauty around the world

<p>HAIR</p> <p>Maasai women (Kenya) shave their heads.</p> <p>In the reign of Elizabeth I (1533-1603) it was fashionable to pluck your hairline back to have a large forehead.</p>	<p>TEETH</p> <p>Mentawai women (Indonesia) sharpen their teeth to points.</p> <p>Teeth whitening and veneers are common in America to form the perfect smile. This is Simon Cowell, music and television producer.</p>
<p>SKIN</p> <p>Skin lightening products are common in India and China. Vaseline launched a skin lightening application for Facebook profiles in India.</p> <p>Fake tanning and using sunbeds is common for many men and women in western cultures.</p>	<p>WEIGHT</p> <p>Catwalk supermodels, such as Kate Moss, value an ultra-slender look.</p> <p>Venus de Milo: The goddess of love and beauty. Classical and renaissance art show her to be a curvy woman.</p>
<p>PIERCINGS</p> <p>Surma women (Ethiopia) pierce their lower lips and place large plates in the hole.</p> <p>Many ear and facial piercings are viewed as attractive in the punk tradition.</p>	<p>MAKE-UP & TATTOOS</p> <p>Wodaabe people in west Africa: the men wear full face make-up during courtship events. There are elaborate ceremonies where women judge the beauty of men and their make up.</p> <p>Maori men in New Zealand traditionally have tattoos on their faces as signs of social status.</p>

Teacher resources

Media images and body confidence

Body confidence: accepting the way we look- the good bits and the less good bits- and feeling happy and comfortable with it.

Are images of beauty in the media realistic?

- Models vs. average women: only a tiny percentage of women have the body shape (long legged, thin hiped, naturally slim and small breasted) needed to be a model. In the UK, an average woman is 5'3" and weighs 11 stone; an average catwalk model is 5'9" and weighs 8 stone.
- Physical manipulation: models' bodies are held in place with a combination of duct tape and padded underwear to create the perfect line. Celebrities often use body doubles for films and TV.
- Computer manipulation: almost all images are retouched using computer software. Wrinkles and blemishes are removed, limbs thinned and lengthened, and colours adjusted.

Is the influence of the media the same for boys and girls, and for people from different cultural backgrounds?

- It is possible to argue that pressure from the media surrounding appearance is disproportionately directed towards women. For example, teen girls magazines focus on tips for looking good whereas teen boys magazines focus on interests (e.g. film, football). However, the presentation of an ideal masculine body is also strong, and there is a growing concern that teenage boys may be resorting to using steroids or working out excessively to achieve this desired look.
- The ideal body shapes presented in the media may be more or less achievable depending on someone's ethnic or cultural background.

Does the influence of the media change as you grow up?

- The last ten years has seen a growth in fashion-focused and potentially sexualised clothing for younger children, such as soft high heeled shoes for baby girls (from Heelarious) and padded bras for children (there was a media outrage about Matalan selling them).

For more information on the role of the media in eating disorders, see the Royal College of Psychiatrists' position statement, accessible here: www.rcpsych.ac.uk



Media Literacy II

Overview

This lesson focuses on building skills for combating the negative effects of media images on body confidence. Students conduct a critical analysis of an advert and explore ways of campaigning against unhelpful images in the media.

Learning objectives

- Students to think critically about an image of beauty in the media
- Students to gain skills for combating unhelpful images of beauty by being critical and campaigning

Outline

- Dove/b-eat video
- Looking through the image
- Campaign
- Action Pledge

Materials needed

- Powerpoint presentation: Media Literacy II
- Internet connection (YouTube)
- Student workbook

Time required

- 50 minutes

Lesson plan

Starter

- Dove/b-eat video (5 mins)

Students to watch the Dove/b-eat video 'Evolution' on the use of image manipulation for beauty adverts. Present the aims of the lesson.

Development

- Looking through the image: Activity A4 & Powerpoint (20 mins)

Show students the fashion advert(s). Students to complete activity A4 in relation to one advert. Give students ~10 minutes to write their answers and then go through the questions as a class.

- Campaign: Activity A5 (20 mins)

Show slide outlining how to write a letter. Students to complete the workbook activity and draft their own letter. If there is time, ask students to read their letters to the class.

Plenary

- Action Pledge: Powerpoint & Activity A6 (5 mins)

Go through final powerpoint slide outlining what has been covered. Students to complete the worksheet. For homework, students should try sending their letter.



Media Literacy II

Looking through the image

For the 'Looking through the image' exercise please choose adverts from those provided in the Powerpoint presentation that you feel are most **interesting, suitable and appropriate** for the class you are working with.

We have arranged the adverts into pairs that complement each other and should help to spark interesting discussions in class. You may use one of these pairs, with half the class focusing on each advert, or you may pick from the individual adverts if you feel they would be more suitable.

The adverts include:

- Dolce & Gabbana: An Italian high fashion company, known for provocative adverts including implicit violence and nudity.
- French Connection: An UK based high street fashion company.
- Tommy Hilfiger: A USA based fashion company
- Diesel: An Italian high street fashion company, known for denim jeans.
- Levi Strauss & Co: American clothing company known for denim jeans.
- ghd (good hair day): UK based hair product (especially straighteners) company

Why was the image created?

- All adverts are designed to get people to act in certain ways, usually to buy a particular product.

Most adverts include these messages:

- This product will make you: have plenty of friends, have great fun, become beautiful, 'become the object of others' desires, become rich, become successful, etc...
- You are lacking in some way and so need to buy this product (i.e. you do not have as many friends, you are not having as much fun, you are not as beautiful etc. as the people in this advert)
- Encourage students to think particularly about the messages of gender roles in the adverts.

Teacher resources

Campaign

These writing tips are to be used with the 'campaign' letter writing exercise.

Campaigning about images in a magazine

To campaign against images in a particular magazine, write to the editor. Details can usually be found on the magazine website. For example, students can write to the editors of teen vogue, or bliss magazine at:

<http://www.teenvogue.com/contact/contactus>

<http://www.mybliss.co.uk/contactus>

Campaigning about an advert

To campaign against a particular advert that you find offensive, you can write to the Advertising Standards Agency:

<http://www.asa.org.uk>

1000s of offensive or misleading adverts are banned every year by the ASA, and only one complaint is needed for an advert to be assessed.

Writing to your MP

The details of your local MP can be found at:

<http://findyourmp.parliament.uk>

Members of Parliament are responsible for deciding on legislation around the media. Students could begin by writing to their MP and asking about their views on the media's portrayal of beauty. Alternatively, students could suggest what they think would be useful for helping young people to feel good about themselves.



Fat talking I

Overview

In this lesson we define fat talking, think about why people tend to fat talk, and what effects it may have on them and those around them.

Learning objectives

- Students to understand what fat talking is
- Students to explore reasons why people fat talk
- Students to consider consequences of fat talking

Outline

- What is fat talking?
- Why do we fat talk?
- What are the effects of fat talking?
- Appearance and happiness
- Review worksheet

Materials needed

- Powerpoint presentation: Fat talking I
- Student workbook

Time required

- 50 minutes

Lesson plan

Starter

- What is fat talking?: Activity B1 & Powerpoint (10 mins)

Introduce the aims of the lesson. In groups, students to read out the examples of fat talking and to come up with a definition. Students to share definitions with the class, and to compare these to the definition provided.

Development

- What are the effects of fat talking?: Powerpoint & Activity B2 (10 mins)

Show slides on links between feeling, thinking and acting. Then students to complete the thought bubbles for how fat talking may affect people.

- Why do we fat talk?: Activity B3 & Powerpoint (10 mins)

Students to complete the activity, and try to list as many reasons for fat talking as possible. Feed these answers back to the class, and compile into mindmap (either using white board or interactive pen on powerpoint)

- Appearance and happiness: Group discussion, Activity B4 (15 mins)

Students to produce arguments for and against the statement that appearances are important for happiness. First ask students to feed back reasons for the statement, and then ask them to feed back reasons against the statement. Ask students to write their own conclusion from the arguments everyone has made and write it on the worksheet.

Plenary

- Review: Activity B5 & Powerpoint (5 mins)

Go through final powerpoint slide outlining what has been covered. Students to complete the worksheet.

Homework

- Fat talk watch

Students to look out for fat talking this week. Students to take notice and to be ready to tell the class about any experiences (not naming any names!) next lesson.



Fat talking I

What is fat talking?

"I'm so fat!"

Fat talking is a **ritualised** form of interaction with friends and family in which negative comments are made about **your own appearance** or the **appearance of others**. Sometimes positive comments can also be fat talking if they are '**poisoned compliments**' with a nasty undertone. Fat talking means expressing things, such as emotions or the status of the social hierarchy, through the **language of fat**.

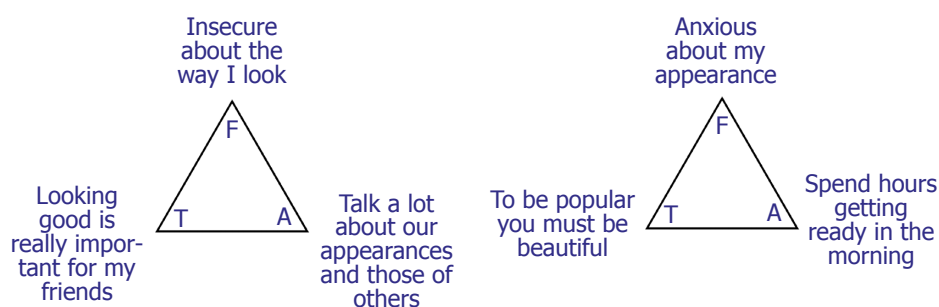
Why do we fat talk?

People (young and old alike) fat talk for many different reasons, including:

- it becomes a habit
- in response to friends fat talking (it's a bit like a ritual, that can be difficult to break out of)
- in order to express emotions ('I'm so fat' often means 'I'm feeling blue today')
- to promote a social hierarchy (putting others down in terms of their appearance can confirm their place in the school 'pecking order')
- we see it a lot in the mass media (e.g. in interviews with celebrities)

The effects of fat talking

It is important to remember that thinking, feeling and acting are all related. Some examples of how fat talking may make us think, feel and act are below:



Teacher resources

Debate: appearance, happiness and success

The table below outlines some arguments that may be made for and against the statement that looking good is essential for happiness and success. The aim of the exercise is to encourage students to think about **why they may value appearances** so much and to challenge whether this fits with **what they really think about the world**.

Reasons FOR	Reasons AGAINST
Studies show that we tend to perceive good looking people as also intelligent, happy and successful (known as the 'halo effect').	There are many examples of people who are not traditionally good looking but who are successful and/or happy e.g.: Katie Piper, acid attack survivor who set up her own charity Wayne Rooney, football player Ann Widdecombe, politician and Strictly Come Dancing contestant
Many sought-after careers, such as being an actor/actress, model, TV presenter, etc. require you to be good looking.	Many careers where appearances are important (e.g. modelling) are short-lived, and are associated with a culture of body dissatisfaction.
Most role models for young people, such as celebrities, are valued for their good looks.	Superficial changes to our appearance (e.g. getting a haircut) might make us temporarily happy but long term happiness and contentment come from other things, such as friends and family.
Making an effort to look good in the morning (e.g. doing your hair) can make you feel more confident all day.	There are many careers where you can't be traditionally good looking to be successful (e.g. being a jockey requires you to be very short).



Fat talking II

Overview

In this lesson we focus on building skills for combating fat talking. It builds on the knowledge gained in lesson 3 and aims to give students practical ways of reducing the amount of fat talking they engage in.

Learning objectives

- Students to practice giving and receiving compliments with themselves and others
- Students to create poster informing other students about fat talking

Outline

- Reminder: What is fat talking?
- Giving and receiving compliments
- Poster making
- Friendship pact

Materials needed

- Powerpoint presentation: Fat talking I
- Student workbook
- Internet connection (for YouTube video)
- Paper and art materials for poster making

Time required

- 50 minutes

Lesson plan

Starter

- Fat talking this week (5 mins)

Student asked to volunteer a definition of fat talking to remind the class. Students then to discuss whether they have experienced any fat talking this week (not naming any names!). Ask student to reflect on how/if they responded. Introduce the aims of this lesson.

Development

- Giving and receiving genuine compliments: Activity B6 & B7, Powerpoint (20 mins)

Students to create a mindmap of what makes a good compliment. Show slide on three components of a good compliment, and get students to give an example of specific compliment. Students to give a compliment to their partner. Go through slides about why we need to learn to give ourselves compliments. Students to watch Jessica video and then write down three genuine things they like about themselves.

- Spread the word: Poster making, Activity B8 (20 mins)

Students to make a poster to remind them and to inform other students about fat talking and the importance of noticing and stopping it with your friends.

Plenary

- Friendship pact: Activity B9 (5 mins)

Go through final powerpoint slide outlining what has been covered. Students to complete the worksheet and make a pact with a friend to stop fat talking.

Homework

- Personal Strengths and Virtues Questionnaire: Activity C3

Students to complete online version of Personal Strengths and Virtues Questionnaire at some point before final lesson. Students to complete the worksheet and note down their top five personal strengths.



Fat talking II

What makes a good compliment

Successful compliments are bursts of positivity that make both the giver and the receiver feel good.

Good compliments are:

- **sincere**: you really mean it. False compliments are easy to spot.
- **spontaneous**: you don't prepare it in advance, just tell someone something nice when it occurs to you.
- **specific**: focus on a particular achievement: "You're really great at this maths topic", rather than "You're so clever".

General compliment	Specific compliment
You're really clever	Well done for doing so well on that maths test.
You're really fashionable	I really like your new jumper, the green looks great on you.
You're so sporty	You played really well in the netball match today.
You're a great cook	These cupcakes are amazing! You made the icing perfectly.

Poster making tips

- Keep the message simple
- Think of ways to make your poster eye catching
- Show what fat talking is and how it affects people
- Give others tips for stopping fat talking in school

Teacher resources

The importance of giving ourselves compliments

Most people have a tendency to focus on their failures and weaknesses rather than their accomplishments and strengths.

For example:

- Students often ruminate about one question they know they got wrong on an exam rather than the 29 questions they got right.
- Students are more likely to note the subjects they are bad at than the subjects they excel in.

We can combat this negativity bias through fostering '**self compassion**'. This is the idea that it is important to treat ourselves with compassion, just as we tend to treat others this way. This means:

- being **kind and understanding** to ourselves in times of difficulty
- recognising that **pain and failure** are part of all human lives
- an ability to face **negative emotions** without drama or self-pity

The first step to achieving self compassion is to recognise and acknowledge good things about ourselves. Try to steer students clear from complimenting themselves on superficial qualities such as good looks. Instead focus on **strengths, talents, actions and abilities**. Some examples of statements students might make about themselves are below:

- I am good at netball
- I am a kind person
- I always look out for my friends
- I'm talented at music
- I'm fun to be around
- I care about my friends and family
- I work hard
- I did well in the maths test last week
- I scored a goal for our football team



Personal Strengths

Overview

In this lesson we focus on personal strengths. We define a personal strength and look at Martin Seligman's work on the 24 personal strengths. Students consider their top five personal strengths. The lesson concludes with a discussion of how we can put our personal strengths to better use.

Learning objectives

- Students to be able to define a personal strength
- Students to know their top 5 personal strengths
- Students to explore ways to use their personal strengths to promote well-being.

Preparation

- Students to have completed online version of Character Strengths Survey (homework from last lesson)

Outline

- What is a personal strength?
- Your personal strengths: knowing and using them
- Exercising your personal strengths
- Review

Materials needed

- Powerpoint presentation: Personal strengths I
- Student workbook
- Sticky labels

Time required

- 50 minutes

Lesson plan

Starter

What is a personal strength?: Activity C1 & C2, Powerpoint & Class activity (20 mins)

Introduce the aims of the lesson. Students to create a mindmap of what makes something a personal strength. Feed ideas back to the class. Present students with the slides about Seligman's definition and the 24 character strengths. In small groups, students to give examples of someone real or fictional (a friend, relative, celebrity etc.) who they think shows the personal strengths (Activity C2).

Development

- Knowing your strengths and recognising them in others: Class activity & Activity C3 (10 mins)

Students to write their top five personal strengths on stickers and wear them on their jumper. Ask students: do they recognise the strength in themselves? What about the top strengths of others in the class?

- Exercising your personal strengths: Activity C4 (15 mins)

Separate the classroom into six areas for the six virtues (see Teacher Resources for which strengths fall into which virtues). Students to go to the virtue area for their top strength. Explain the importance of learning how best to exercise your personal strengths. In their virtue groups, students to think up one way they can exercise their personal strength in the coming week (Activity C4). Examples are given in the teacher resources. Feed back ideas to the class.

Plenary

- Review and explanation of three good things: Powerpoint & Activity C6 (5 mins)

Go through powerpoint slide outlining what has been covered. Give three good things exercise as homework for the next lesson. Students are to complete the three good things diary each night and to bring it with them next lesson.



Personal Strengths

What are personal strengths?

Personal strengths are about knowing what's best about ourselves. Martin Seligman suggests that personal strengths should have the following characteristics:

- a sense of **authenticity** ('This is the real me')
- A feel of **excitement** while displaying it, particularly at first
- A rapid **learning** curve
- A sense of **yearning** to want to use it
- A feeling of **inevitability** in using the strength ('Try to stop me')
- **Invigoration** rather than exhaustion while using the strength
- The creation and pursuit of personal **projects** that revolve around it
- A joy, zest and **enthusiasm** while using it.

From: Seligman, M. 'Flourish', p. 38

Strengths and Virtues

Seligman and colleagues have identified 24 personal strengths. The 24 personal strengths are arranged into six core virtues, described as "core characteristics valued by moral philosophers and religious thinkers". This diagram shows which strengths are part of which core virtues:

Wisdom & Knowledge Curiosity Creativity Open-mindedness Love of learning Perspective	Courage Bravery Persistence Integrity Vitality	Transcendence Appreciation of beauty & excellence Gratitude Hope Humour Spirituality
Humanity Love Kindness Social intelligence	Temperance Forgiveness & mercy Humility & modesty Prudence Self-regulation	Justice Citizenship Fairness, equality & justice Leadership

Teacher resources

Using personal strengths

Curiosity Expand your knowledge about something through reading a specialist magazine, or using the internet. Visit new places as often as you can.	Creativity Make time to write, draw or create at least once a week. Redesign your room to make it reflect your personality.	Open-mindedness Write down the pros and cons when making important decisions. When facing a challenge, imagine the best and worse situations and then think of the most realistic outcome.
Love of learning Visit a museum every month. Read a non-fiction book on something that interests you.	Perspective Volunteer to be a peer mentor. Investigate the life of someone you think of as wise.	Bravery Take a stand against peer pressure to do things in your school. Stand up for someone who doesn't stand up for themself.
Persistence Start a long term project, such as growing plants from seed. Think about a big goal you have and write down the small steps you need to get there.	Integrity Notice if you are telling small, white lies and immediately correct yourself. Find a charity or group that works in an area you feel is important.	Vitality Start doing a new type of outdoor physical activity. Think of someone who really makes you laugh and call them for a chat.
Love Take time to appreciate the strengths of people you love. Carry out a small act of kindness for someone you care about.	Kindness Share your belongings with others. Start volunteering for a local organisation.	Social intelligence Speak plainly about what you want with others. If someone offends you, find at least one positive element in their motives.
Citizenship Find and join a local community project. Play a sport for your school or area.	Fairness, equality & justice Write to your MP about something you think needs changing. Make sure everyone is involved in a group discussion.	Leadership Start a new group or club at school. Stand up for someone who is being treated unfairly.
Forgiveness & mercy Be kind in your interactions with someone who has offended you. Make a conscious effort to let bygones be bygones.	Humility & modesty Resist showing off if you notice that you're better than others. If you make a mistake, admit it and apologise straight away.	Prudence Think about a big goal you have and write down the small steps you need to get there. Vow not to take the easy option if it will hinder you reaching your long term goals.
Self-regulation Make a homework plan and try to stick to it each week. If you have a bad habit, like biting your nails, vow to stop for one week and reward yourself if you succeed.	Appreciation of beauty Take time to visit a museum or art gallery. Start a creative project of documenting beauty around you.	Gratitude Make sure you always say thank you to someone who has helped you, no matter how small the task. Everyday take note of one thing that you usually take for granted.
Hope Read a book about someone who succeeds against the odds. Write down three past accomplishments and stick them up in your room to remind you of them.	Humour Cheer up a friend who is feeling down. Take time to read funny books or to watch a comedian.	Spirituality Spend ten minutes relaxing and meditating each evening. Join a community group that shares your values.

Many of these examples are taken from: Rashid & Anjum (2005) 340 Ways to Use VIA Character Strengths



Happiness

Overview

This final lesson focuses on happiness, where it comes from and some simple exercises to help us to feel more of it. It is based on the work of positive psychologists and also on recommendations from the Action for Happiness.

Learning objectives

- Students to think about different sources of happiness
- Students to be introduced to the ten steps to happiness
- Students to practice two exercises: three good things and the gratitude letter.

Outline

- Happiness: what makes me happy?
- A positive approach: Three good things
- Giving: kindness and gratitude
- Review

Materials needed

- Powerpoint presentation: Happiness
- Student workbook
- Internet connection (Youtube video)

Time required

- 50 minutes

Lesson plan

Starter

- Happiness: what makes me happy?: Activity C5 & Powerpoint (15 mins)

Outline the aims of the lesson. Students to create mindmap of things that make them feel happy. Ask students to feedback three things and create a wordle from their answers. Outline the ten steps for happiness. Ask students to compare their mindmaps from the exercise. Are there things that make them happy that aren't in the ten steps?

Wordle: a word cloud. You can create them online at www.wordle.net

Development

- A positive approach: What went well?: Activity C6 (10 mins)

Students should have completed the exercise for homework. Ask students to provide some examples of what went well that week. Get students to reflect on the exercise: did it help to notice and appreciate things in their own life?

- Giving: kindness and gratitude: Activity C7 & C8 (15 mins)

Students to mindmap small acts of kindness that they could do in the coming week. Students to feed their ideas back to the class. Students to watch the 'gratitude letter visit' video, and then to try to write their own gratitude letter.

Plenary

- Review: Activity C9 & Group discussion (10 mins)

Show powerpoint summing up whole programme. Students to complete worksheet and reflect on what has been most useful in these lessons. Ask each student to say to the class what they have found most useful. Point students to the further information at the end of the workbook.



Happiness

10 Steps to Happiness, by the Action for Happiness

www.actionforhappiness.org

- **Giving:** Do things for others
- **Relating:** Connect with people
- **Exercising:** Take care of your body
- **Appreciating:** Notice the world around
- **Trying out:** Keep learning new things
- **Direction:** Have goals to look forward to
- **Resilience:** Find ways to bounce back
- **Emotion:** Take a positive approach
- **Acceptance:** Be comfortable with who you are
- **Meaning:** Be part of something bigger

The steps for happiness are about small changes we can make to our lives to feel happier and more content. Earlier lessons should feed into: **acceptance**, and this lesson focuses on **giving** and **positive emotion**.

Explore whether students' ideas about what makes them happy coincide with these ten steps.

What Went Well: Taking a Positive Approach

What Went Well is a powerful tool developed by Martin Seligman. Human beings have a natural tendency to focus on the negative side of things. In evolutionary terms, this is adaptive: it helps you to focus on potential threats and to learn from mistakes. Now that the threats of our evolutionary past have long gone it can be helpful to counteract this natural tendency in order to boost our everyday happiness.

The task involves writing down at the end of every day **three things that went well**. These can be big events, like doing well in an important exam, or small events, like having a lovely coffee with a friend. Having identified three things, the task involves reflecting on them: **why** did they happen? and **how** can I make them more likely to happen again?

Example:

What went well?: Got a good mark in my french vocab test.

Why?: I worked hard last night and made sure I knew the words.

How can I make it happen more?: Keep trying hard, and putting in the time to learn the words the night before. Try not to do it on the school bus...

Teacher resources

Small Acts of Kindness

It is now well documented that small acts of kindness to others work wonders to boost our own happiness levels.

For example:

- People ended up happier in a study when they were given **money to spend on others** than if they were given money to spend on themselves.
- Giving to others activates the same '**reward centres**' in our brains as when we experience pleasurable things ourselves.

Examples of small acts of kindness in everyday life include:

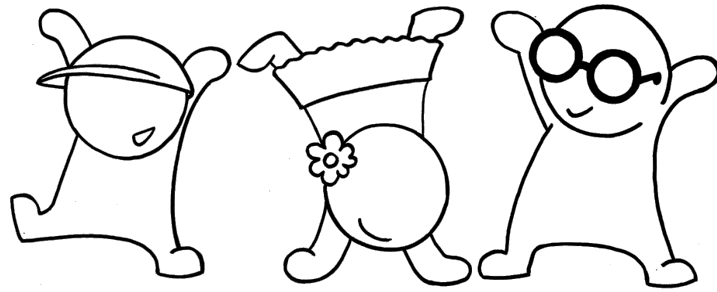
- Making a cup of tea for someone who you think would like it
- Buying someone a small gift, like a chocolate bar
- Reminding someone of how much you like them
- Letting someone in front of you in the queue
- Giving up your seat on the bus
- Smiling at someone in the street
- Offering to carry someone's bags up the stairs at the train station
- Hold open the door for someone

Several organisations make it their mission to carry out small acts of kindness. These include:

- The Free Hugs Campaign
- The Random Acts of Kindness Foundation







Appendices

- **Further information**
- **About the authors**

Further information

b-eat

UK eating disorders charity

www.b-eat.co.uk

Helpline: 0845 634 1414

Eating Disorders Research

Institute of Psychiatry Eating Disorders Research

www.iop.kcl.ac.uk/sites/edu

Information: 020 7188 0186

Young Minds

UK youth mental health charity

www.youngminds.org.uk

Enquiries: 020 7336 8445

Mind

UK mental health charity

www.mind.org.uk

Infoline: 0300 123 3393

Royal College of Psychiatrists

Professional body and source of mental health information

www.rcpsych.ac.uk

Telephone: 020 7235 2351

The Site

Website especially for young people

www.thesite.org

NICE

National Institute of Clinical Excellence

Guidance on best health care

www.nice.org.uk

Further information

Prominent book on feminism and the body

Arrow Books Ltd

**Fat is a
feminist issue**
by Susie Orbach

Prominent book on the media and female beauty **The beauty myth**
by Naomi Wolf

Vintage

Original and accessible discussion of fat talk

Harvard University Press

Fat talk
by Mimi Nichter

Homepage of M. Seligman, founder of positive
psychology

www.authentichappiness.org

**Authentic
Happiness**

UK happiness movement

www.actionforhappiness.org

**Action for
Happiness**

Current research from positive psychology

Nicholas Brealey Publishing

Flourish
by Martin Seligman

Charter promoting media literacy and links to many
media literacy resources

www.euromedialiteracy.eu

**European
Charter for
Media Literacy**

Organisation promoting doing random acts of kindness
towards others

<http://www.randomactsofkindness.org/>

**Random Acts of
Kindness
Foundation**



About the authors

Helen Sharpe

Helen is a PhD student in the Section of Eating Disorders at the Institute of Psychiatry, King's College London. After graduating from the University of Cambridge with a degree in Social and Political Sciences, Helen went on to gain an MSc in Philosophy of Mental Disorder from King's College London. In 2010, Helen joined the Section of Eating Disorders after being offered a PhD studentship in the area of applied research about anorexia nervosa. Her interests include: peer influences in the development of eating disorders, and the prevention of eating disorders through schools-based interventions.

Ulrike Schmidt

Professor Ulrike Schmidt is head of the eating disorders research team at the Institute of Psychiatry, King's College London and a consultant psychiatrist within the eating disorders service at South London and Maudsley NHS Foundation Trust. Ulrike is involved in several prevention programmes for eating disorders and common mental health problems, including an online intervention for university students. She has co-authored several books for individuals with eating disorders and health care professionals working in this area.

Janet Treasure

Professor Janet Treasure is Director of the Eating Disorder Unit and Professor of Psychiatry at King's College London and has more than 25 years experience in the treatment and study of eating disorders. Janet is also a Chief Medical Advisor for Beat and a fellow at the Academy of Eating Disorders. In 2007, Janet received an Eating Disorders National Award from national eating disorder charity Beat. During her career, she has edited seven academic texts on eating disorders and authored three self-help books, including *Getting Better Bite by Bite*, *Anorexia Nervosa* and *A Survival Guide for Families, Friends and Sufferers*.

ME, YOU & US

Student Workbook



Student name:

Student class:

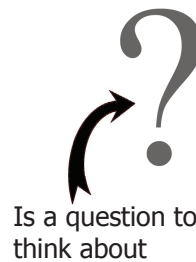
About this workbook

This workbook is for you to use throughout the Me, You & Us programme. It aims to provide you with practical skills that you can use in your everyday life. The workbook is arranged into four sections.

1. Being Media Savvy
2. Fat Talking
3. Happiness
4. Further Information

The first three sections include material that you will cover in class with your teacher or as homework. The last includes further resources that you can look at if you want to explore something covered in the lesson in more detail.

Look out for these symbols:



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SECTION A

BEING MEDIA SAVVY

Surviving in a media heavy world



Activity A1:

What is beautiful?

TASK: From the magazine pictures, pick out an example of one man and one woman who you think are good looking. When you have found the pictures, write down three reasons why you picked those particular images.



Attach the pictures you
picked here



Three reasons I picked picture one:

1.

2.

3.

Three reasons I picked picture two:

1.

2.

3.



- Did other people in the class have similar or different reasons for picking their picture as you?
- Do you think people from different cultures would have different reasons for picking their picture?

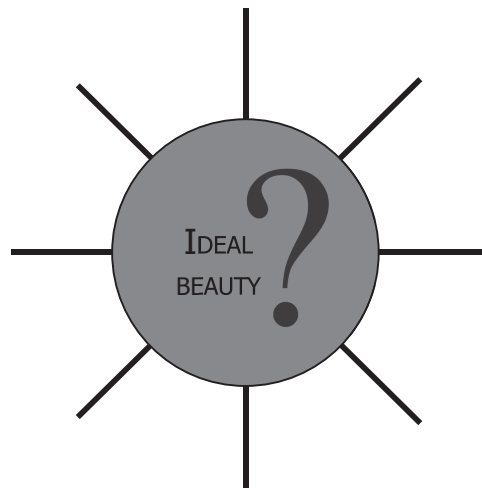


Activity A2:

Where do your ideas of beauty come from?

Across different cultures and throughout history very different things are considered to be beautiful. This means that ideals of beauty are not fixed. Who or what affects your ideas of beauty?

TASK: Think of as many possibilities as you can and write them down in the space below:



Activity A3:

Discussion topic:

How do images of
beauty in the media
affect young
people's confidence?

Use this space to note down at least three good points
that were raised in the discussion:



Activity A4:

Looking through the image

All images in the media are created with a purpose. One type of image - adverts - are designed specifically to get us to buy something. You see hundreds of adverts everyday so it's really important that you're able to look through the images to see the real messages they are giving.

Briefly describe the image:

Who created the image?

Is the image aimed at a particular type of person?

Think about: gender, age, cultural background, etc.



Why was the image created? Is it designed to make people think, feel or act in certain ways?



Almost all images used in adverts and the wider media have been altered in some way so the person looks differently to how they do in real life. During the photoshoot, using make up and lighting, and after the photo shoot, using computer programmes, the person is 'retouched' to remove any imperfections.

This retouching can be difficult to spot (if it's done well that is!). Look carefully at the image. Do you think there has been any altering of the image? If something looks too good to be true it probably is!

What things could have been done to make the people in this image seem flawless:





Stuck for ideas? Think back to the video you watched at the beginning of this lesson. What techniques did they use?



Activity A5:

Campaign!

If you think that the images in the media make it difficult for young people to feel confident about their appearance, you can do something about it!

TASK: On the page opposite, plan a letter to someone responsible for the creation or regulation of images of beauty in the media. This could be the editor of a teen magazine, the director of a company with particularly bad adverts or your MP.

Include:

1. A description of the problem and why you think it is wrong:

For example: I am writing about the photos of fashion shoots that were included in your recent edition of the magazine (pp. 3-7). I am concerned that showing unrealistic images of beauty like those in your adverts makes it very difficult for young people to grow up feeling confident about their appearance...

2. What you think the magazine/company/MP could do about it:

For example: I think it would be helpful if your magazine chose to use more realistic images and did not use computer programmes, such as Photoshop, to make models look thinner and to remove imperfections like wrinkles...

This lesson has focused mainly on adverts. Can you think of any other forms of media that present us with unrealistic or unhelpful images of beauty? Are there any television programmes that you think may make it difficult for young people to grow up feeling confident?



 The editor's/director's/MP's name

[illegible]



USEFUL SKILL



Activity A6:

Action Pledge

These lessons have focused on what we find beautiful and why. We have also looked at two ways of surviving being in a media heavy world: learning to be critical of images in the media, and campaigning for a more realistic presentation of beauty in the media.

Now you have these skills, you can use them to help you and people around you grow up feeling confident.

ACTION PLEDGE

I will not take images in the media at face value


I will take a stand against images that make it hard for young people to feel good about themselves

Signed: _____

Date: _____

☐

☐

Tick here 



SECTION B

FAT TALKING

What is it and how to stop it!



Activity B1:

What is fat talking?

You might not realise it, but it is very likely that you and your friends experience fat talking almost every day. Here are some examples of fat talking. Think about what they have in common and try to come up with a definition of fat talking.

Example 1:



Example 2:



Example 3:




Example 4:



Fat talking is:

?

Example 5:

 Fat talking is mostly negative comments about others and about ourselves. However, sometimes seemingly positive comments can be fat talking. On the surface these 'poisoned compliments' can seem to be nice, but they can imply something nasty and can be a way of subtly putting others down.




Activity B2:

The effects of fat talking

How do you think fat talking affects how people think, feel and act? Write down an example of fat talking in the speech bubble and then write down how you think the fat talking might change how people think and feel about their own appearance?

Fat talking...

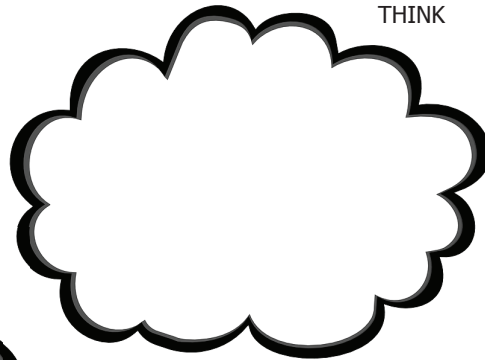


 Feeling, thinking and acting are all related: does fat talking make people feel differently about their appearance? And if so, how does this make them think and act?

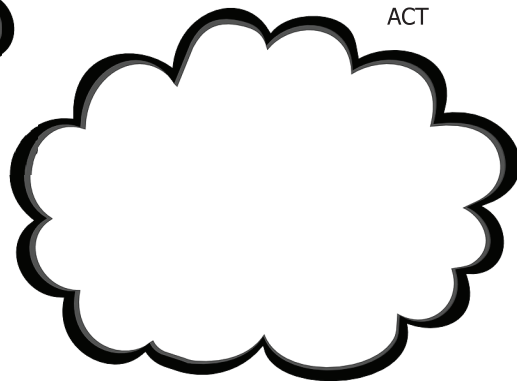
FEEL



THINK



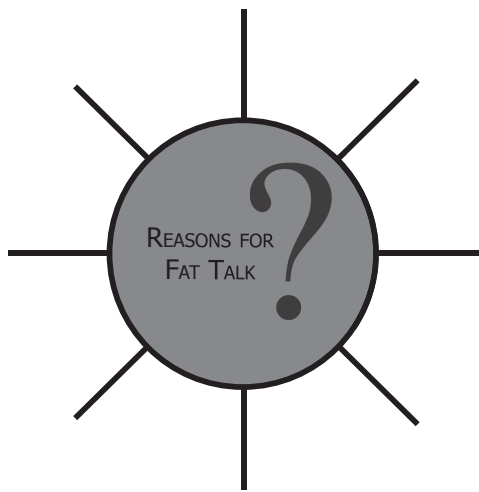
ACT



Activity B3:

Why do we fat talk?


Fat talking is really common, but why do we do it? Try to think of as many possible reasons as you can, and be ready to share your ideas with the rest of the class.



Activity B4:

Talking point

Fat talking means that people are judged based on their appearance and people use the 'language of fat' to either give people status or to take it away from them. Fat talking makes students feel like appearances are essential for how much you are valued as a person: your worth.



Looking good is
essential for
happiness and
success

Now that you know about fat talking, and are able to recognise it happening around you, it is important that you think about whether you agree with this.

TASK: Look at the statement above. First try to come up with some reasons why people might agree with this statement. Next come up with reasons why people might not agree with this statement. Be ready to share your ideas with the class.



Arguments for why this could be TRUE	Arguments for why this could be FALSE

Conclusions:



Activity B5:

What we've covered this lesson

This lesson has focused on what fat talking is, why we might fat talk and what the consequences can be for us and our friends. You should now be able to answer these questions.

What is fat talking?



Give three reasons why people might fat talk:

- 1.
- 2.
- 3.

Fat talking can be bad for us and our friends. Give one example of how fat talking might change the way we feel, think and act.

Feel:

Think:

Act:

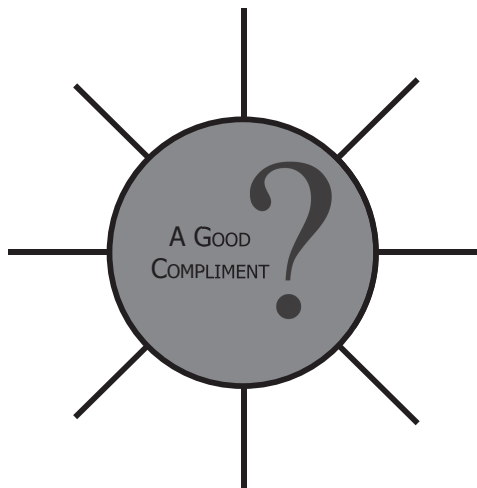


Activity B6:

What makes a good compliment?

When we're in the habit of fat talking, giving and receiving real compliments can become a rare activity. This is a real shame because receiving a real compliment from a friend can be all that's needed to make your day really great. And small acts of kindness, such as giving genuine compliments to others, are one of the best ways to make us feel happier and more positive.

TASK: What do you think makes a good compliment?



Activity B7:

Beat the inner bully!

It can be easy to beat ourselves up about little things and to always tend to see the worst in ourselves. We have thought about what makes a good compliment, and how to give and receive them. Now think about giving yourself compliments. Write down three things you like about yourself.

1.

2.

3.



USEFUL SKILL

Activity B8:

Spread the word

In the remaining time of this lesson, design a poster for your school that tells other students about fat talking.

Things you could include:


- what is fat talking
- why might we do it?
- how can you and your friends help each other to stop fat talking?
- what are positive ways of speaking to your friends?

Use this space to jot down your ideas:



A friendship pact

Stopping fat talking by yourself can be difficult. It will be much easier if your friends are on board too. Pick one friend and make a pact with them to stop fat talking. If you notice your friend fat talking then remind them of the pact you have together, and expect them to do the same for you!



FRIENDSHIP PACT

We, _____ (name)
and _____ (name)

Promise to:

- ✓ watch out for fat talking
- ✓ give real compliments every day
- ✓ take compliments well

from _____ (date) onwards.

Signed 1: _____

Signed 2: _____



SECTION C

PERSONAL STRENGTHS & HAPPINESS

Knowing your personal strengths and
making sure you use them

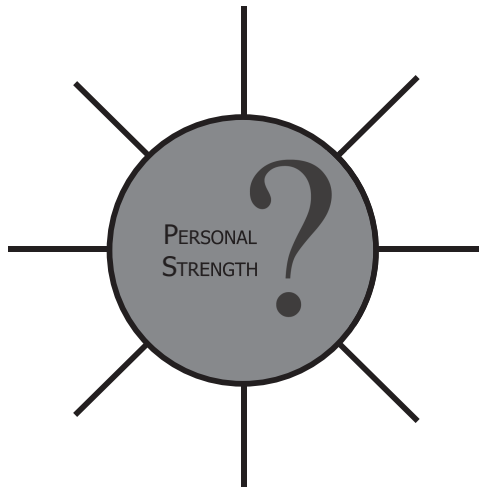


Activity C1:

What is a personal strength?

This lesson is all about knowing your personal strengths and being able to use them. Before we focus on your personal strengths, it is important that you think about what a personal strength actually is.

TASK: Use the space below to write down your ideas about what makes up a personal strength:



Activity C2:

Personal Strengths

TASK: Think of a person, real or fictional, who shows each strength.

For example: the Dalai Lama shows Spirituality, Shakespeare shows Creativity, and maybe someone in your class shows Vitality.

1. Creativity I always like to do things in different ways Example:	2. Curiosity I always want to know more Example:	3. Open-mindedness I am always able to look at both sides of an issue Example:
4. Love of learning When I want to learn something, I try to find out everything about it Example:	5. Perspective I often come up with solutions to problems that make everyone happy Example:	6. Bravery I have the courage to do what I think is right Example:
7. Persistence When I start a project, I always finish it Example:	8. Integrity I always keep my word Example:	9. Vitality Whatever I do, I throw myself into it Example:
10. Love When I have a problem, I know I have someone who will be there for me Example:	11. Kindness If there are new students in my class, I try to make them feel welcome Example:	12. Social intelligence I always know what to say to make people feel good Example:

Continues over the page...



Personal Strengths

13. Citizenship I am loyal to my group no matter what Example:	14. Fairness When I work in a group, I give an equal chance to everybody Example:	15. Leadership When people in my group do not agree, I can get them to work together Example:
16. Forgiveness & mercy When people say they are sorry I give them a second chance Example:	17. Humility & modesty Rather than just talking about myself, I prefer to let others talk about themselves Example:	18. Prudence I make sure I am careful so that I get things right Example:
19. Self-regulation Once I make a plan I stick to it Example:	20. Appreciation of beauty and excellence Listening to beautiful music makes me feel better Example:	21. Gratitude I often feel lucky to have my parents and family Example:
22. Hope I can find what is good in any situation, even when others can't Example:	23. Humour I am good at making people laugh Example:	24. Spirituality When I am upset, I often pray to myself Example:



These descriptions of character strengths are taken from: Peterson & Seligman (2004) "Character Strengths and Virtues", Oxford University Press

Activity C3:

Your strengths

Everyone has different strengths. Some people can always be trusted to keep a secret, others are endlessly creative or have a great sense of humour. Although we can probably list the strengths of our friends, we don't often think about our own personal strengths. Work out your top five personal strengths.

TASK: Visit:

www.authentic happiness.sas.upenn.edu

and complete the VIA Strengths for Children Questionnaire.

This may take around 30 minutes.

My Five Personal Strengths are:

1.

2.

3.

4.

5.



Exercising your strengths

Our personal strengths bring us the best bits of our lives. They give us those experiences where we can look back and think 'that was great'. The more you use your personal strengths, the more often you will experience these moments of engagement and happiness, called 'flow'.

TASK: Take one of your top personal strengths, and think of a way in which you can be sure to exercise it at least once this week.

Personal strength:

Plan to exercise it this week:



What makes us happy?

Think about the different things that make you feel happy, and give you a sense of well-being.

TASK: Write your ideas in the mindmap space below:





What went well?

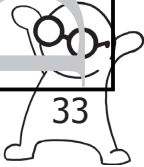
Do you take the time to appreciate the things that go well in your life? For one week, write down three good things that happen each day. Also think about why they happened and if there are any ways you can make sure they happen more in the future. Look out for your personal strengths in the explanation of why things happened.

<p>What happened?</p> <p>1.</p> <p>2.</p> <p>3.</p>	<p>Why? Can you make it happen more?</p> <p>1.</p> <p>2.</p> <p>3.</p>
<p>What happened?</p> <p>1.</p> <p>2.</p> <p>3.</p>	<p>Why? Can you make it happen more?</p> <p>1.</p> <p>2.</p> <p>3.</p>



If you find this exercise useful, why not carry on beyond this week? It's a great way to boost your happiness every day!

<p>What happened?</p> <p>1.</p> <p>2.</p> <p>3.</p>	<p>Why? Can you make it happen more?</p> <p>1.</p> <p>2.</p> <p>3.</p>
<p>What happened?</p> <p>1.</p> <p>2.</p> <p>3.</p>	<p>Why? Can you make it happen more?</p> <p>1.</p> <p>2.</p> <p>3.</p>
<p>What happened?</p> <p>1.</p> <p>2.</p> <p>3.</p>	<p>Why? Can you make it happen more?</p> <p>1.</p> <p>2.</p> <p>3.</p>



What happened? 1. 2. 3.	Why? Can you make it happen more? 1. 2. 3.
What happened? 1. 2. 3.	Why? Can you make it happen more? 1. 2. 3.

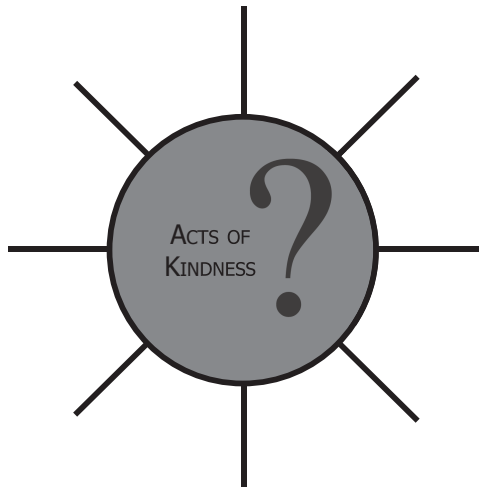


The good things you write down can be as small or as big as you like. Did you do well at something in school? Did someone appreciate something you did for them? Did you have good luck? Did you see someone you haven't seen for a while?...



Acts of kindness

Small acts of kindness to others are one of the most surefire ways to leave us feeling happier and more positive. These acts can be very small things, such as making a cup of tea for someone or letting someone in front of you in the queue. Try to think of some more small acts of kindness you might be able to do this week.



Gratitude letter

Is there someone who has helped you out when times were difficult, or who always makes you feel good about yourself?

TASK: Write them a letter telling them how grateful you are for what they have done for you. If you are able to, give it to them.

Dear

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There is no handwriting or other markings on the paper.

Sign your
name here



Summing up

During this programme, we have focused on how to deal with the media's portrayal of beauty, how to stop fat talking with friends and ways to feel happier in your everyday life.

Before finishing this final lesson, think about:

- What has been the most interesting element of these lessons?
- What have you found most useful?
- These lessons aim to give you skills that you can continue to use in your everyday life. Think of one thing that you will try to keep using now that these lessons have ended.



If you have found something interesting in a lesson, have a look at the back of the workbook for how to find out more.





SECTION D

MORE INFORMATION

How to investigate these topics
further



More information

Interested in more information about any of the things covered in these lessons?
Below are some good places to start:

Websites

Action for Happiness

<http://www.actionforhappiness.org/>

Dove: Campaign for Real Beauty

<http://www.dove.co.uk/campaign-for-real-beauty.html/>

Adios Barbie

<http://www.adiosbarbie.com/>

Operation Beautiful

<http://operationbeautiful.com/>

The Site

<http://www.thesite.org/sexandrelationships/familyandfriends/friendship/>

Authentic Happiness

<http://www.authentichappiness.sas.upenn.edu/>

Random Acts of Kindness Foundation

<http://www.randomactsofkindness.org/>

BBC News: The Happiness Formula

http://news.bbc.co.uk/1/hi/programmes/happiness_formula/

Books

Naomi Wolf: The Beauty Myth

Martin Seligman: Flourish

Mimi Nichter: Fat talk



Appendix F: Reliable and clinically significance change between baseline and three month follow up.

F.1: Reliable and clinically significant change in body esteem (T_1 - T_3) in those participants above the clinical cut off at baseline.

	Intervention group			Control group		
	Reliable change		Total n(%)	Reliable change		Total n(%)
	Yes n(%)	No n(%)		Yes n(%)	No n(%)	
<i>No clinically significant change</i>	4 (11) ^a	12 (34)	16 (45)	1 (4) ^a	18 (62)	19 (66)
<i>Clinically significant improvement</i>	15 (43)	4 (11)	19 (54)	7 (24)	3 (10)	10 (34)
Total	19 (54)	16 (46)	35 (100)	8 (28)	21 (72)	29 (100)

Note: Percentages are based on whole group totals. ^a 100% these reliable changes are in the direction of improved body esteem.

Group difference of reliable change: $\chi^2(1) = 4.64, p = 0.03$

Group difference of clinically significant improvement: $\chi^2(1) = 2.50, p = 0.11$

F.2: Reliable and clinically significant change in body esteem (T_1 - T_3) in those participants below the clinical cut off at baseline.

	Intervention group			Control group		
	Reliable change		Total n(%)	Reliable change		Total n(%)
	Yes n(%)	No n(%)		Yes n(%)	No n(%)	
<i>No clinically significant change</i>	25 (15) ^a	144 (85)	169 (100)	9 (8) ^a	106 (92)	115 (100)
<i>Clinically significant worsening</i>	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Total	25 (15)	144 (85)	169 (100)	9 (8)	106 (92)	115 (100)

Note: Percentages are based on whole group totals. ^a 100% these reliable changes are in the direction of improved body esteem.

Group difference of reliable change: $\chi^2(1) = 3.15, p = 0.08$

Group difference of clinically significant improvement: no difference to explain.

F.3: Reliable and clinically significant change in thin-ideal internalisation (T_1 - T_3) in those participants above the clinical cut off at baseline.

	Intervention group			Control group		
	<i>Reliable change</i>		Total <i>n</i> (%)	<i>Reliable change</i>		Total <i>n</i> (%)
	Yes <i>n</i> (%)	No <i>n</i> (%)		Yes <i>n</i> (%)	No <i>n</i> (%)	
<i>No clinically significant change</i>	1 (2) ^a	28 (61)	29 (63)	1 (4) ^a	13 (52)	14 (56)
<i>Clinically significant improvement</i>	0 (0)	17 (37)	17 (37)	3 (12)	8 (32)	11 (44)
Total	1 (2)	45 (98)	46 (100)	4 (16)	21 (84)	25 (100)

Note: Percentages are based on whole group totals. ^a 100% these reliable changes are in the direction of worsening thin-ideal internalisation.

Group difference of reliable change: $\chi^2(1) = 4.73, p = 0.03$

Group difference of clinically significant improvement: $\chi^2(1) = 0.34, p = 0.56$

F.4: Reliable and clinically significant change in thin-ideal internalisation (T_1 - T_3) in those participants below the clinical cut off at baseline.

	Intervention group			Control group		
	<i>Reliable change</i>		Total <i>n</i> (%)	<i>Reliable change</i>		Total <i>n</i> (%)
	Yes <i>n</i> (%)	No <i>n</i> (%)		Yes <i>n</i> (%)	No <i>n</i> (%)	
<i>No clinically significant change</i>	11 (7) ^a	134 (86)	145 (94)	12 (9) ^a	107 (84)	119 (93)
<i>Clinically significant worsening</i>	0 (0)	10 (6)	10 (6)	0 (0)	9 (7)	9 (7)
Total	11 (7)	144 (93)	155 (100)	12 (9)	116 (91)	128 (100)

Note: Percentages are based on whole group totals. ^a 100% these reliable changes are in the direction of worsening thin-ideal internalisation.

Group difference of reliable change: $\chi^2(1) = 0.49, p = 0.49$

Group difference of clinically significant improvement: $\chi^2(1) = 0.04, p = 0.85$

F.5: Reliable and clinically significant change in depressive symptoms (T_1 - T_3) in those participants above the clinical cut off at baseline.

	Intervention group			Control group		
	<i>Reliable change</i>		Total <i>n</i> (%)	<i>Reliable change</i>		Total <i>n</i> (%)
	Yes <i>n</i> (%)	No <i>n</i> (%)		Yes <i>n</i> (%)	No <i>n</i> (%)	
<i>No clinically significant change</i>	13 (23) ^a	17 (30)	30 (54)	10 (28) ^a	14 (39)	24 (67)
<i>Clinically significant improvement</i>	0 (0)	26 (47)	20 (46)	0 (0)	12 (33)	12 (33)
Total	13 (23)	43 (77)	56 (100)	10 (28)	26 (72)	36 (100)

Note: Percentages are based on whole group totals. ^a 100% these reliable changes are in the direction of improved depressive symptoms.

Group difference of reliable change: $\chi^2(1) = 0.24$, $p = 0.62$

Group difference of clinically significant improvement: $\chi^2(1) = 0.39$, $p = 0.53$

F.6: Reliable and clinically significant change in depressive symptoms (T_1 - T_3) in those participants below the clinical cut off at baseline.

	Intervention group			Control group		
	<i>Reliable change</i>		Total <i>n</i> (%)	<i>Reliable change</i>		Total <i>n</i> (%)
	Yes <i>n</i> (%)	No <i>n</i> (%)		Yes <i>n</i> (%)	No <i>n</i> (%)	
<i>No clinically significant change</i>	2 (1) ^a	115 (79)	117 (80)	0 (0)	91 (82)	91 (82)
<i>Clinically significant worsening</i>	0 (0)	29 (20)	29 (20)	0 (0)	20 (18)	20 (18)
Total	2 (1)	144 (99)	146	0 (0)	111 (100)	111 (100)

Note: Percentages are based on whole group totals. ^a 100% these reliable changes are in the direction of improved depressive symptoms.

Group difference of reliable change: $\chi^2(1) = 1.53$, $p = 0.22$

Group difference of clinically significant improvement: $\chi^2(1) = 0.14$, $p = 0.71$